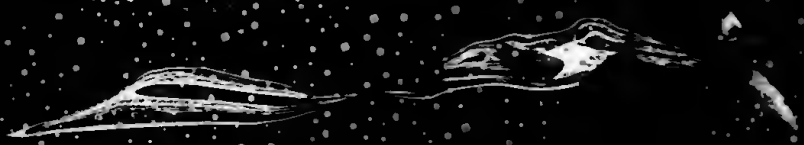
Is cubicle life causing aches and pains? Then it may be time to seek professional help – from an ergonomist. PAGE 8

COMPUTERWORLD

23RD ANNUAL SALARY SURVEY 2009



Salaries are on ice, workloads are heavier, and benefits have been chipped away. IT workers are stuck for now, but will they break free when the economy thaws? Read results from our survey of nearly 6,000 IT professionals at every job level. PAGE 23

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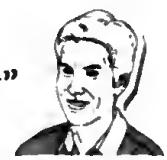

Mark Russinovich

Because it's everybody's business

Smarter technology for a Smarter Planet:

Thinking outside the box depends on what's in the box.

The systemic inefficiencies in many server rooms today, in terms of both energy consumption and utilization, are becoming unsustainable. It isn't simply a question of cost — it's also about maintaining day-to-day operations. A recent study found that an estimated half of all businesses experience IT outages due to power and cooling issues.[1]

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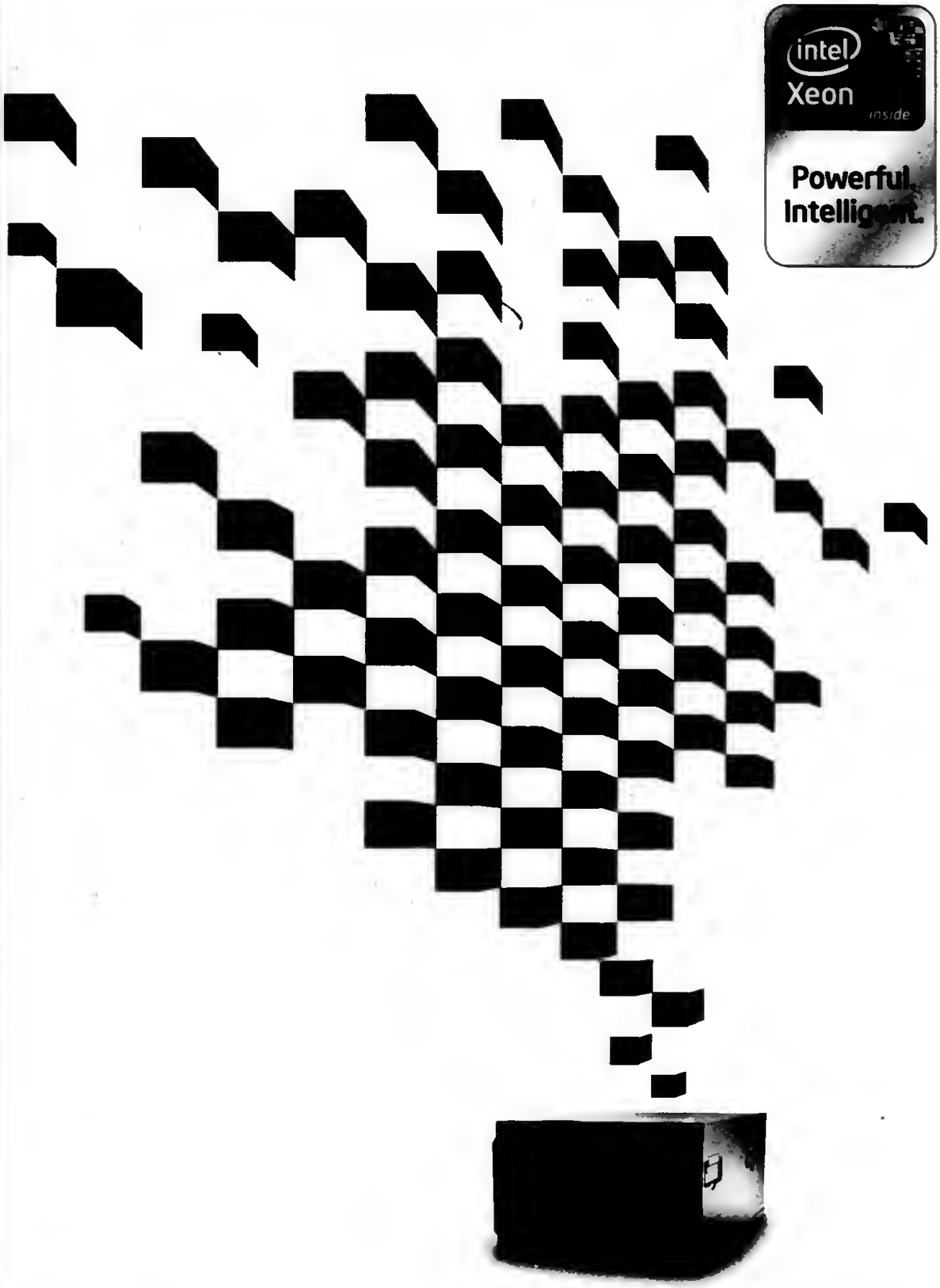
Source: IDC Market Analysis #215870 Volume 1, December 2008 Worldwide Server Energy Expense 2008–2012 Forecast Return on investment and power savings calculation based on 11:1 consolidation customer configurations and environment For more information visit www.ibm.com/smarterplanet/claims IBM the IBM logo ibm.com BladeCenter Smarter Planet and the planet icon are trademarks of at www.ibm.com/legal/copytrade.shtml Intel the Intel logo Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the United States and other countries © International



ratio scenario of 166 Intel 1U 2 socket servers to 14 BladeCenter HS22 servers and savings in energy costs, software license fees and other operating costs. Actual costs and savings will vary depending on individual

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23RD ANNUAL SALARY SURVEY 2009

SALARIES FREEZE, AND A WORKFORCE GROWS RESTLESS

Workloads and responsibilities are up, and just about everything else – including budgets, salaries and hiring – is down. Read how the average IT staffer is weathering the storm.

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■ SKILLS ON THE RISE. **Information security managers had the highest total compensation increase in this year's survey. Network engineers, business intelligence analysts and software developers are also getting raises that outpace the average.**

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OPINION: **Smart IT hiring managers are ready to act promptly and strategically to recruit and retain IT professionals, says Dave Willmer, executive director of Robert Half Technology. Employers who wait for ideal conditions before hiring will struggle to find strong candidates.**

ONLINE

DON'T SEE YOUR JOB TITLE HERE? Check out our online interactive tool to find compensation figures for more than 50 IT titles. Search based on your job title, experience level and geographic location to see what your peers are earning.

OPINION. Safeguard your career with a personal action plan that defines your long-term goals and how you'll reach them, advises John M. McKee, founder and CEO of BusinessSuccessCoach.net.

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VIEW

Desktop Virtualization Changes the Game for IT

XenDesktop: Improve security, simplify computing.

Gordon Payne, SVP, CITRIX SYSTEMS. INC.

Payne is the senior vice president and general manager of the Desktop Division for Citrix, a $1.6B leader in virtualization, networking and cloud computing. A seasoned industry veteran in IT infrastructure, he provides product leadership with a focus on identifying new market opportunities and creating desktop virtualization product solutions for Citrix customers and partners.

Although the benefits of server virtualization are well known, desktop virtualization is on pace to be an even bigger game-changer for CIOs, according to Gordon Payne, senior vice president of the Desktop Division at Citrix Systems, Inc. In this interview, Payne lays out his company's vision of desktop virtualization and explains how the technology can improve security, increase agility and simplify computing by enabling IT to deliver desktops and applications as an on-demand service.

Is desktop virtualization the same as VDI?

VDI, or "virtual desktop infrastructure," refers to the process of running an end user desktop inside a virtual machine that lives on a server. It's a powerful form of desktop virtualization that enables fully personalized desktops for end users, with all the simplicity of centralized management for IT. Although VDI works great for some users, it's not a great fit for others. That's why we designed our Citrix XenDesktop product line to go beyond VDI and deliver a full range of desktop virtualization technologies ideal for everyone from task workers to mobile employees. All of this is made possible through our unique FlexCast™ delivery technology, which delivers the best desktop for every user, every time.

How do customers benefit from desktop virtualization?

From an IT perspective, the benefits of desktop virtualization are clear. Instead of trying to manage, secure, patch and update thousands of unique desktops individually, companies running desktop virtualization benefit from the centralization of all management functions, regardless of where the desktop actually runs. Getting new users up and running goes from days to minutes. Moves, adds and changes are a snap. Updates and patches are easy. And security is far tighter.

From an end user perspective, the benefits can be equally profound. With desktop virtualization, users are no longer tethered to a specific device. They simply grab whatever PC, Mac, laptop, netbook, thin client or smartphone is most convenient and get instant, secure access to their full desktop and everything on it. Because all the moving parts are managed centrally from brand-new OS and application images, virtual desktops also tend to work better and run faster. And our HDX technology ensures that they'll get a high-definition experience every time.

Are hardware costs reduced as with server virtualization?

Although cost is rarely the primary motivation for moving to desktop virtualization, savings are significant and generally run in the range of 30 percent to 40 percent over traditional desktop management. In some cases, you can realize these savings by purchasing low-cost thin clients and running multiple desktops on a single server in the data center. The biggest cost savings by far, however, come from simplifying the ongoing management of desktops and applications across a distributed enterprise. With desktop virtualization, adding, changing or moving users is unbelievably easy. So is the process of installing, managing, securing and patching applications and desktops.

Can't I just use my server virtualization vendor for desktop virtualization?

It depends. Vendors in the world of server virtualization tend to think of desktops as "just another server workload." For these vendors, anything that doesn't run on a server inside a VM is irrelevant. As a result, their desktop products are generally narrow VDI-only solutions that force customers to place all their bets on a single delivery method for all use cases. You need comprehensive desktop virtualization solutions that deliver all the benefits of centralized management without compromising the user experience, personalization or ROI.

What are the biggest challenges of desktop virtualization?

As long as you select products that give you the flexibility to support the full range of desktop virtualization models and deliver a high-definition experience to users, the technical challenges are generally fairly low. The biggest challenge by far is breaking the inertia of old ideas within IT and having the courage to show your employees a better, simpler way of doing things.

FOR MORE INFORMATION: please visit **http://www.virtualizationvision.com/cw**

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■ ONLINE CHATTER

RESPONSES TO:

Q&A: Carrying Your Life in Your Pocket

Oct. 19, 2009

How arrogant to think a future generation would take the time to wade through the "life and times" of John Doe. Important events, yes, but terabytes of trite information? I think not. The anthropologists of the world would love it, but not the vast majority of the population. How many people these days even stay in touch with grandparents, aunts, uncles, great aunts, etc., let alone take the time to read about their hemorrhoid operation back in '03, or how excited they were when cousin Billy first rode his bike without training wheels? Count me out. I can think of better uses of Earth's resources and my time!

■ Submitted by: *Anonymous*

But this research technology could revolutionize the treatment of and give autonomy to people living with memory impairment, one of the leading problems of vets returning from Iraq.

■ Submitted by: *Anonymous*

RESPONSE TO:

Visitors Under Attack

Oct. 19, 2009

The author quoted Brian Dye, senior director of product management at Symantec Corp., as saying, "Preventing attacks like SQL injections requires using enterprise-class security tools, such as intrusion-prevention and -detection systems, with a focus on behavioral analysis to spot attacks."

No, preventing SQL injection only requires that the programmer have the time and knowledge to properly filter user input. There are many standard JavaScript, PHP, Perl, Java, ASP.Net routines out there; you don't have to reinvent the wheel. You can download someone else's work, modify it to fit your needs and you're good to go.

I'm sure Symantec's director of product management would rather have you believing that you need some enterprise-level product, but that's simply not the case.

■ Submitted by: *Thomas J. Raef*

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Open-Source CRM And ERP in the Cloud

This increasingly common setup offers compelling ROI – and the ability to tweak code.
computerworld.com/s/article/9140096

Trials of the Internet Damned

Sure, it's cheaper to run apps off the cloud – when your Internet connection is working. When you have network problems, it's another story.
computerworld.com/s/article/9140606

5 Ways to Improve Web Site Uptime

You can't fix the Internet, but you can try these techniques for improving your Web site's uptime.
computerworld.com/s/article/9140234

SharePoint's Feet of Clay

OPINION: The collaboration tool has been a rare bright spot for Microsoft lately, but that might not last.
computerworld.com/s/article/9140603

Ham Radio Fosters Wireless Innovation

Abundant spectrum resources, loose rules and an engaged research community are drawing wireless experimenters back to a hobby that many had given up for dead.
computerworld.com/s/article/9139771

Droids in the Enterprise

OPINION: Android 2.0 and the first device to use it, the Droid, have a certain coolness factor, but that's not what corporate IT is looking for.
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HUMAN FACTORS

Get Help to Avoid the Pains of Cubicle Life

AN EXPENSIVE ergonomic chair won't do any good unless it's properly adjusted by a trained professional, according to a study in the *Journal of Occupational and Environmental Medicine.*

Prompted by a move to a new headquarters facility, World Bank researchers designed a study involving two groups of employees. Both groups were given ergonomic office furniture and information on how to set it up, but one of the groups also received personalized setup by a professional ergonomist.

The ergonomics effort reduced the aches, pains and eyestrain produced by office work — but only for the employees whose workstations were set up and adjusted by an ergonomist, according to the study, led by World Bank health consultant Jasminka Goldoni Laestadius.

The reduction in painful symptoms was clearly related to improved work postures, the researchers said.

"This really isn't a surprise. People are not intuitive ergonomists, otherwise there would never be any problems or injuries," said Alan Hedge, director of the Human Factors and Ergonomics Laboratory at Cornell University, in an interview.

Proper adjustments require an observer who can see what changes are needed, he said, just as an athlete needs a coach to evaluate his technique and suggest improvements.

"Simply giving people ergonomic products with some educational materials is like giving a teenager a car with an instruction book and then expecting them to be a safe driver," Hedge said.

– Mitch Betts

COMPUTERWORLD.COM

IN THE CLOUD

Luxury Automaker Taps Google Apps For 15,000 Seats

Google Inc. recently signed up another big customer for its Google Apps Premier collaboration and productivity suite: Jaguar Land Rover. The vehicle maker obtained a license for 15,000 employees worldwide, adding another name brand to Google's roster of big commercial customers, such as business services firm Rentokil Initial PLC and vehicle parts maker Valeo.

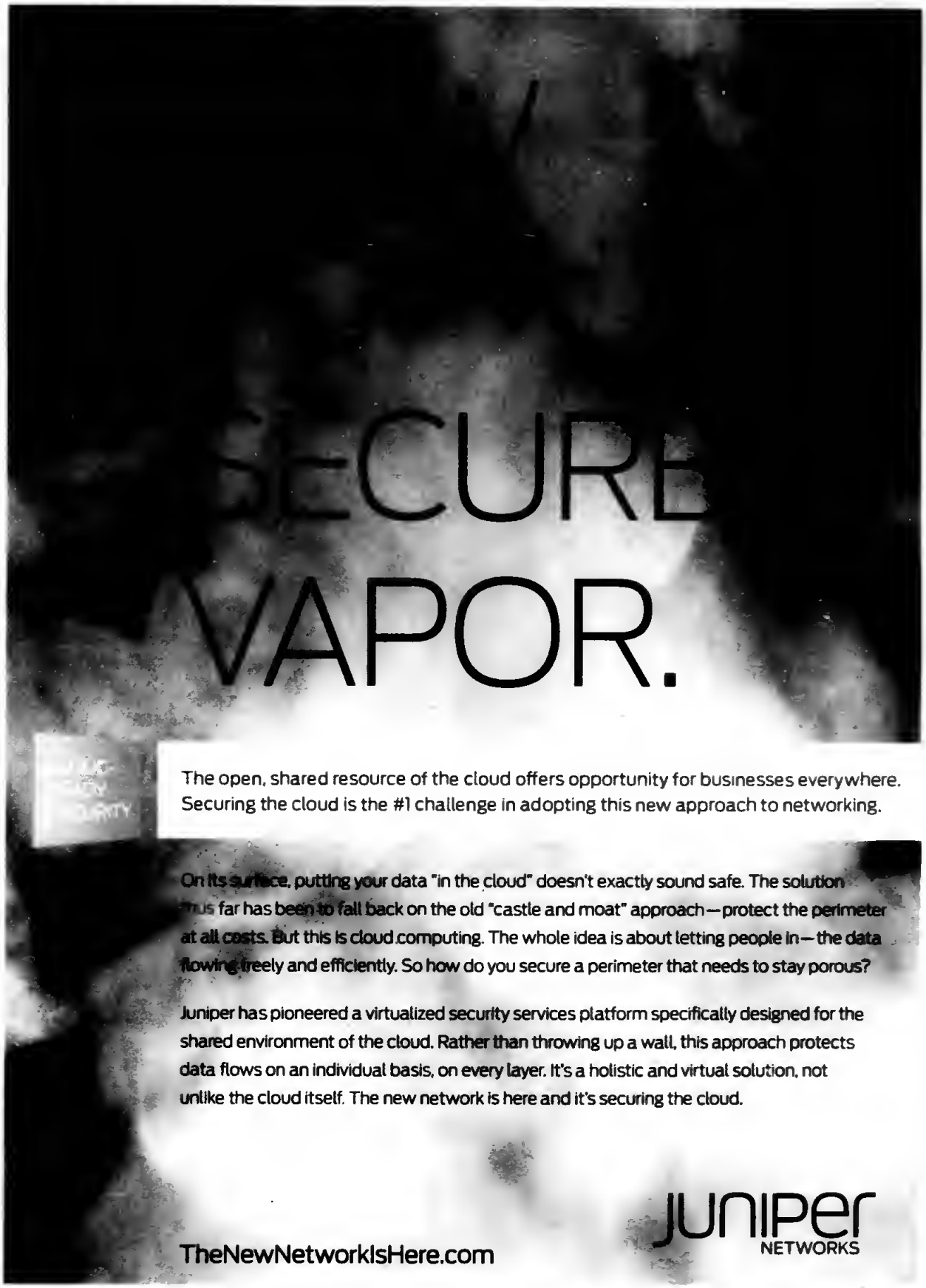
Jaguar Land Rover is in the process of separating its systems from those of former parent Ford Motor Co., which sold the luxury brands to Tata Motors Ltd. last year for $2.3 billion.

Jeremy Vincent, CIO at Jaguar Land Rover, said he's a recent convert to Web-based applications. "Six or seven months ago, I didn't know what cloud computing was, but I was invited to speak at a conference on it, so I thought I had better learn. I did, and it fundamentally changed my attitude towards IT," he said.

The low cost of Google Apps "enabled me to get the approval process signed off quickly," Vincent said, "but in the future, it will give us access to a commodity solution across the workforce."

He said he was recruited to Jaguar Land Rover "on a change agenda," and going with Google Apps fit the bill. "If you do the same as everyone else, don't expect to be better than anybody else," he added.

- MARTIN VEITCH, CIO U.K.



The open, shared resource of the cloud offers opportunity for businesses everywhere. Securing the cloud is the #1 challenge in adopting this new approach to networking.

On its surface, putting your data "in the cloud" doesn't exactly sound safe. The solution thus far has been to fall back on the old "castle and moat" approach—protect the perimeter at all costs. But this is cloud computing. The whole idea is about letting people in—the data flowing freely and efficiently. So how do you secure a perimeter that needs to stay porous?

Juniper has pioneered a virtualized security services platform specifically designed for the shared environment of the cloud. Rather than throwing up a wall, this approach protects data flows on an individual basis, on every layer. It's a holistic and virtual solution, not unlike the cloud itself. The new network is here and it's securing the cloud.

TheNewNetworkIsHere.com

JUNIPER NETWORKS

BETWEEN THE LINES
By John Klossner

Micro Burst

Despite the buzz, only

16%

of server workloads are on virtual machines today. But that figure will grow to 50% by the end of 2012.

SOFTWARE AS A SERVICE

Talent Management Yields Dramatic ROI

SURVEYS SHOW that "talent management" — the process of attracting, developing and retaining highly skilled workers — will be one of the top priorities for human resources managers in 2010, yet only 20% of HR managers say they do a very good job of it.

The North Shore–Long Island Jewish Health System, based in Great Neck, N.Y., must be in that 20%. Over the past five years, the 15-hospital system has overhauled and centralized its talent management processes to the point where "talent management is our competitive advantage and will be in the future," said Joseph Cabral, chief human resources officer.

The HR initiative has yielded dramatic results, such as the following:

- A reduction in the turnover rate for new critical care nurses from 63% to 13%, as a result of better hiring, development and performance practices.
- Savings of $7.7 million due to a decision to focus recruitment advertising on the media outlets that have produced the most applicants.
- A decrease in paperwork, an improvement in employee engagement, a reduction in the time it takes to fill positions, and the ability to tie employee performance reviews to the business goals of quality care and patient satisfaction.

Cabral said a key part of the revamp was moving from paper-driven HR processes to procedures that use real-time data and take advantage of an automated workflow made possible by Taleo Corp.'s talent management system, a software-as-a-service offering. "Taleo helped us to hard-code the organizational goals into the system," Cabral said. "We can quickly determine who's being reviewed, see performance ratings and metrics, and make educated decisions based on hard data."

Cabral added: "You could do that without Taleo, but it might take years to determine the big gaps. Taleo helped us get there a lot quicker."

– Mitch Betts

LEADERSHIP

Tech Groups Honor 2009 Power CIOs

'Tis the season for state and local "CIO of the Year" programs. Here's a sampling of recent winners:

- The Nevada Center for Entrepreneurship and Technology named **Paul Ayoub,** CIO at insurer Employers Holdings Inc. in Reno, as its 2009 CIO of the Year. The award cited Ayoub's successful integration of systems after a merger with AmCOMP Inc.
- The Executives' Club of Chicago bestowed the same honor on The Boeing Co. CIO **John Hinshaw.**
- The Nashville Technology Council paid tribute to Hospital Corporation of America for having the "Technology Organization of the Year" and named HCA CIO **Noel Williams** CIO of the Year.
- The Georgia CIO Leadership Association honored the following people as the top CIOs in specific categories: **Randal Robison,** CIO at Georgia Pacific LLC (global category); **Robert Keefe,** CIO at Mueller Water Products Inc. (enterprise); **Paul Judge,** CTO at Purewire Inc. (corporate); and **Dedra Cantrell,** CIO at Emory Healthcare (nonprofit).

– MITCH BETTS

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WASHINGTON WATCH

National ID Program In Deep Trouble, as Budget Is Cut 40%

A DECISION BY lawmakers to slash funding for the unpopular Real ID national driver's license program has put an already struggling initiative on life support.

The U.S. Senate recently approved a $43 billion budget for the U.S. Department of Homeland Security for the federal government's 2010 fiscal year, which began Oct. 1. The appropriation called for substantial increases in DHS spending in several key technology areas but slashed Real ID funding by 40%, from $100 million to $60 million.

The budget cut suggests that Real ID is going nowhere, said Jim Harper, director of information policy studies at the libertarian Cato Institute. But Congress' hesitation to kill Real ID entirely highlights the touchy political nature of the program, he said.

"There isn't any love for Real ID on Capitol Hill," Harper said, but many lawmakers are reluctant to openly reject it for fear of being seen as too soft on national security.

The Real ID Act was signed into law by President George W. Bush in 2005 as part of the government's effort to combat terrorism. The law requires states to follow a single national standard for identifying and authenticating people who apply for driver's licenses. It spells out specific technical and process requirements, including the use of biometric identifiers, for issuing licenses.

But the law has evoked widespread criticism from privacy advocates who say it would create a de facto national ID card that's hard to manage and even harder to secure. A major concern is the requirement to link all state driver's license databases via a central hub for data sharing.

States, too, have railed against Real ID as an unfunded federal mandate, and most have refused to participate. DHS Secretary Janet Napolitano was one of the first state officials to reject Real ID when she was the governor of Arizona — and that makes it hard for her to push it on other states now.

"For all intents and purposes, Real ID has been put on the back burner," said Pam Dixon, executive director of the World Privacy Forum. "But it isn't dead yet."

– Jaikumar Vijayan

INTERFACES

A big challenge for biometric security systems is reading grubby fingerprints, such as those encountered in the construction industry. But technology developed by the University of Warwick in England can identify partial, warped, scratched, smudged or otherwise distorted fingerprints in just a few seconds. The system, which "unwarps" any fingerprint to create a clear digital representation, is now commercially available and is being used in access control and time management systems at construction sites.

SOURCE UNIVERSITY OF WARWICK, COVENTRY, ENGLAND

BOOK REVIEW

Four Steps to Becoming a Top-Tier CIO

The elite CIOs – perhaps the 25 most successful CIOs in the nation – already know what's in this book, which is why they're so successful. *The Real Business of IT*, by Richard Hunter and George Westerman (Harvard Business Press, 2009), is for the rest of us. It's about how to go from being a pretty good CIO to being a great one.

The book covers the following steps for moving IT from the role of cost center to that of a value creator:

■ **Avoid the "value traps."** An example of a value trap is thinking that your job is to deliver great technology for the enterprise. The reality is that your job is to use IT to dramatically improve business performance and business outcomes. Unless you view it that way, you're setting up IT to get credit for cost and trouble, but not for value.

■ **Show that IT produces value.** As the "cheap information officer," you demonstrate that the IT organization is providing the right services, at the right level of quality, at a competitive price.

■ **Demonstrate how IT improves business performance.** As "chief improvement officer," you help business people make the connection between IT investment and improved business performance.

■ **Show how you have value outside IT.** As the "CIO-plus," you operate as a peer with other business executives and provide value beyond IT itself. Some CIOs have been so successful with IT and process improvement that they get additional duties overseeing the supply chain, facilities or all shared services, for example.

Hunter and Westerman also provide eye-opening advice about the importance of benchmarking your IT operation against those of world-class peers, and how to establish metrics that will demonstrate your IT shop's value to other top executives.

Most companies have only a handful of metrics that really matter to business leaders. Find out what they are. Which ones affect executive compensation? Which metrics does the CEO monitor every day? Once you know that, you'll know how to demonstrate real business value in terms the CEO understands. The book emphasizes the importance of not only creating business value, but communicating it properly.

-MITCH BETTS

Mark Russinovich
Technical Fellow
Windows Core

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Hard Times Aren't Slowing GM's New CIO

Terry Kline lays out his Windows 7 upgrade plans and his hopes for cloud computing.

By Patrick Thibodeau

TERRY KLINE likes Windows 7, the iPhone, PCs stored on USB drives, and cloud computing services.

And Kline's preferences matter — a lot. As the new CIO at General Motors Corp., he oversees the technology budget of a company that's one of the world's largest buyers of corporate IT products, despite its recent brush with Chapter 11 bankruptcy protection. GM's sheer size — nearly $150 billion in 2008 sales and about 235,000 workers — means that just about anything the Detroit-based automaker's CIO does gets the attention of IT vendors and watchers.

Kline, a nine-year veteran of GM's IT operation, took over as CIO when his former boss, Ralph Szygenda, retired on Oct. 1.

Szygenda, hired as CIO in 1996, reshaped GM's business processes, adopted global standards for managing IT and used the power of $15 billion in outsourcing contracts to persuade the company's vendors to deliver interoperable products.

Now Kline plans to implement further changes. Among other things, he aims to replace about 100,000 Windows XP-based laptops and desktops with Windows 7-based desktops over the coming year. The new systems will include myriad collaboration tools, such as videoconferencing systems, and will interoperate with mobile devices.

Kline called Windows 7 "a big enabler of productivity" and said he expects it to be an "easier operating system to sustain, from an IT cost perspective."

GM is also expanding its mobile standard beyond Research In Motion Ltd.'s BlackBerry product to devices like Apple Inc.'s popular iPhone. "We have to open our environment to mobility, not just the BlackBerry," Kline said.

Meanwhile, GM is also looking to evaluate whether cloud computing technologies can deliver on their promise to be a means by which computing environments can be rapidly created and torn down. "That would be a significant value proposition," Kline said.

He noted that GM officials have recently met with Amazon.com Inc. personnel to discuss Amazon's Elastic Compute Cloud, or EC2, cloud offering.

Kline said external cloud-based test and development environments could prove useful, but cloud computing won't become "really attractive" to GM until vendors come up with better pricing models. The ideal would be something akin to a pay-per-click model, he added.

The GM CIO said he also plans to explore other innovative IT approaches that are starting to emerge, including what is sometimes called a "PC on a stick" — a USB drive that's loaded with the user's desktop software and storage systems. Such drives, offered by companies like VMware Inc., enable users to run their business desktops on other machines.

Gartner Inc. analyst Thilo Koslowski said that expanding the technology universe for GM users will benefit the company's customer base as well.

For instance, as GM workers use emerging technologies that are popular with consumers, they can develop new ways to interact with customers. Koslowski said that a consumer technology mind-set will be very important when dealing with a new generation of younger car buyers who "will expect the car to be connected in some form or fashion." ■

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AMD Deal Could End Intel Legal Woes

The settlement could spur the rivals to jointly upgrade the x86 platform. By Sharon Gaudin and Patrick Thibodeau

LAST WEEK'S settlement of Advanced Micro Devices Inc.'s lawsuit against Intel Corp. could mark the beginning of the end of a period of antitrust litigation against the Santa Clara, Calif.-based chip maker, according to analysts.

The deal, which ends both antitrust and patent cross-license disputes, calls for Intel to pay AMD $1.25 billion and to abide by a set of business practice provisions.

For its part, AMD agreed to drop all pending litigation against Intel — including an upcoming case in U.S. District Court in Delaware and two cases pending in Japan — along with all regulatory complaints targeting the chip maker.

"It's good for everyone that it's over," said Martin Reynolds, an analyst at Gartner Inc. "This will make AMD a more attractive target for investors, and it's certainly good news for Intel."

The settlement came just a week after the state of New York filed the latest antitrust lawsuit against Intel, alleging that the company had threatened multiple computer makers, made payoffs and engaged in a "worldwide, systematic campaign of illegal conduct."

The Nov. 4 New York suit was seen by analysts as just one more legal problem to add to Intel's growing pile, which included the pending AMD lawsuit, another filed by Nvidia Corp., and fines of $1.44 billion and $25 million imposed by the European Commission and the Korea Fair Trade Commission, respectively, for antitrust violations.

"With AMD withdrawing all complaints, it's likely all these suits will dry up," Reynolds said. "It will be hard to go forward.

"The $1.25 billion is a downside [for Intel], but that's about it," he noted. The company and its lawyers no longer have to spend vast amounts of time and energy collecting evidence and sitting in courtrooms, he added.

The settlement could also blunt any plans by the U.S. Federal Trade Commission to jump into the antitrust fray against Intel, said analyst Rob Enderle of San Jose-based Enderle Group.

The FTC launched an antitrust investigation into Intel more than a year ago and had been expected to take some kind of action against the company soon.

Reynolds said the agreement may also encourage AMD and Intel to cooperate to address shared technical concerns, such as a need to improve virtualization capabilities in the x86 processor platform.

The two companies have an incentive to make the x86 platform as attractive as possible, particularly as they try to get customers to upgrade while the economy recovers from its deep dive. "A common standard that makes virtualization more efficient at the I/O level would move it forward," Reynolds said.

During a conference call with reporters, Intel CEO Paul Otellini called the settlement a move of expedience, and he noted that it does not include an admission of guilt.

"We have not wavered in our convictions that Intel has operated in the boundaries of the law," Otellini said. "While it pains me to write a check at any time, I think [this is] a practical settlement and a good compromise."

Thomas McCoy, AMD's executive vice president of legal, corporate and public affairs, said the settlement should set a new tone for two companies whose relationship has been "intense and emotional, and at times acrimonious, for many years." Future disputes will more likely be settled privately, he added. ■

Grant Gross and Marc Ferranti of the IDG News Service contributed to this story.

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PHOTOS COURTESY OF NETAPP INC.

Dossier

Name: Tom Georgens

Title: President and CEO

Organization: NetApp Inc.

Location: Sunnyvale, Calif.

Favorite nonwork pastime: "Radiosport – competitive amateur radio."

Favorite technology (not created or sold by NetApp): "The iPhone (except for the awful battery)."

In high school, I was . . . "Disinterested."

Most recent book you've read: *How to Castrate a Bull: Unexpected Lessons on Risk, Growth, and Success in Business*, by Dave Hitz

■ **THE GRILL**

Tom Georgens

NetApp's new CEO predicts that the **coming technology refresh** will be a new game, with users demanding **very different architectures.**

In August, Tom Georgens took over as CEO at NetApp Inc., replacing Dan Warmenhoven, who had led the data storage vendor since 1994. Georgens, who was NetApp's chief operating officer, took command during what he describes as "a period of relative calm" after a time of turmoil. During the past fiscal year, NetApp's revenue has been down quarter over quarter compared with last year, and it laid off 6% of its employees — about 500 people.

On top of that, over the summer, NetApp lost a multibillion-dollar bidding war with chief rival EMC Corp. to acquire the hottest data de-duplication vendor in the market, Data Domain — a takeover originally architected by NetApp. Georgens discusses how the loss of that bidding war will affect NetApp, as well as what's in store for the company in terms of virtualization, cloud computing and other possible technology company buyouts.

Why the change of leadership at NetApp?

I think there are a couple of factors. I think Dan has made it clear for quite some time that he was not going to be doing this past [age] 60. And I think as we went through this difficult period that one of the messages was he clearly didn't want to make the transition in the middle of a storm, so he was look-

Continued on page 20

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"When this tech refresh happens, it's clear to me it isn't going to be like the last refresh in terms of people buying new versions of what they already have in place.

Continued from page 18

ing for a period of relative calm.

While the overall environment is hardly euphoric at this point, we've at least gotten to a point of stabilization, where the transfer [of power] can be positive. I'd say the other side is that as with any downturn, the market emerges different from when it went in. There are technology implications for us, in terms of go-to-market [strategies], and we're trying to drive a bunch of priorities in the company around those. I think making the transition now is symbolic that those things are now priorities and we need to change some of the things we were doing in the past. The way [Warmenhoven] describes it internally is that this is a new era for NetApp. The new era applies to products, go-to-market and apparently leadership as well.

When you say "storm," are you talking strictly about the economy or NetApp specifically? I think overall, from our competitive position, we feel pretty good. Over the past five years, we've experienced a 25% compound annual growth; very few companies have been able to do that. And we did 7% last year, which is certainly better than most, but not where we expected to be and not where we expect to be in the future. But if you look at our business last year, our top 100 accounts are the most economically sensitive almost by definition and, in our case, concentrated in a couple of industries. But once you get out of those accounts, we acquired more new accounts than at any year in our history.

NetApp brokered an acquisition of Data Domain, but EMC wound up buying that company out from under you. What kind of impact does that have on NetApp? It would be really easy for me to say we dodged the bullet [and] we shouldn't have gone after it in the first place. I'm not going to say that. Obviously, we would have loved to have had Data Domain as part of our portfolio. It's a good company, and it has good products.

What we were looking to buy is a backup solution for disk-to-disk. This was an opportunity for us to enter a new market that has a fair amount of growth, with a company that has some traction and some scale, and it was a very opportunistic transaction for us.

Frankly, I think our opportunity with Data Domain was going to come at the expense of somebody else, and I think EMC was concerned that might be them. But for NetApp, this was primarily an offensive strategy to enter a new market and use that to augment the growth of our core business, but EMC saw it as a defensive move, and they arrived at a different valuation than we did. Eventually, we drew the line and determined it wasn't worth it to us anymore.

How will NetApp approach cloud computing? I think it's unlikely that NetApp will be a cloud [infrastructure] provider. I don't see us as a data center operator. I don't think that's our skill set. I think our strategy will be to enable companies that want to build cloud infrastructures [for other companies].

I think the external cloud is very interesting to NetApp. If you look at NetApp's business, we're still a 12% or 13% marketplace player. And [of the] 5,000 largest storage buyers in the world, roughly only one-third of those are NetApp customers. So strategy-wise, or market-share-wise, there's plenty of opportunity for us to gain share. If we think about what it would take to double this firm, I think the go-to-market side is the bigger challenge. If you believe there will be this class of providers called cloud service providers and they're going to aggregate large amounts of end-user demand in one place, then winning those gives us a tremendous amount of sales leverage.

What will drive growth in the data storage marketplace as the recession ends? Over the last couple of years, we've seen more and more one-year renewals of service and maintenance contracts. That tells me that people are trying to wring one more year out of their equipment in these difficult times. So when this tech refresh happens, it's clear to me it isn't going to be like the last refresh in terms of people buying new versions of what they already have in place; I think they have a very different architecture in mind, and that includes virtualization. And those [vendors] that haven't advanced much, particularly in the midrange SAN space, are going to suffer in this coming tech refresh.

When you consider our integration with the virtualization tools, provisioning technologies, our de-duplication for primary storage, and our zero-space cloning for provisioning new virtual machines, we really have a very strong offering.

— *Interview by* **Lucas Mearian**

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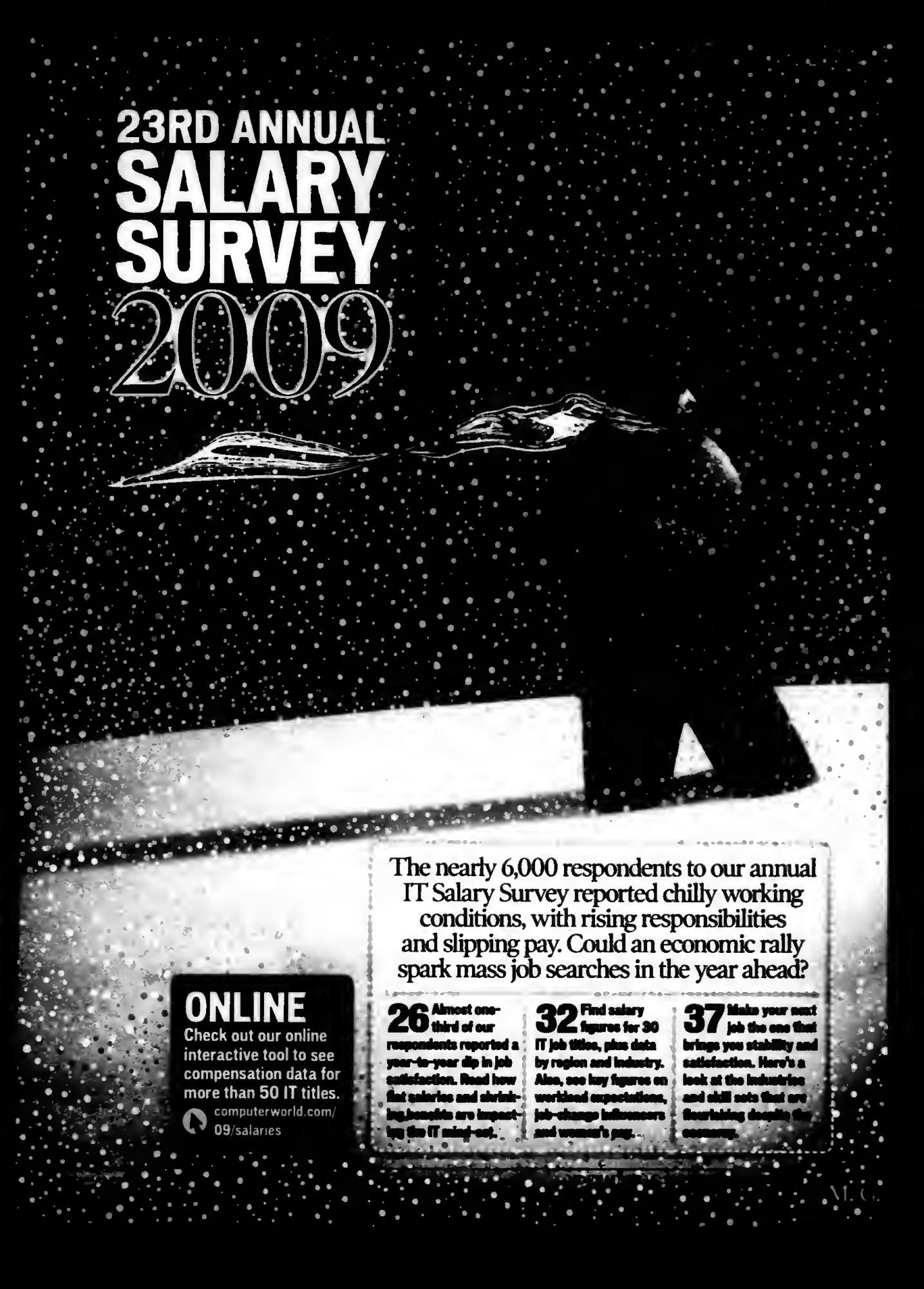

The nearly 6,000 respondents to our annual IT Salary Survey reported chilly working conditions, with rising responsibilities and slipping pay. Could an economic rally spark mass job searches in the year ahead?

26 Almost one-third of our respondents reported a year-to-year dip in job satisfaction. Read how flat salaries and shrinking benefits are impacting the IT mind-set.

32 Find salary figures for 30 IT job titles, plus data by region and industry. Also, see key figures on workload expectations, job-change influencers and women's pay.

37 Make your next job the one that brings you stability and satisfaction. Here's a look at the industries and skill sets that are flourishing despite the economy.

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THE BIG FREEZE

MICHAEL DIDDS

DAVID THOMAS, network administrator at TallyHo Plastics Inc., is feeling a little beat up. In the past year, he's seen his compensation, training opportunities and benefits drop, all while watching his workload increase. He's not overly bitter — the decisions his employer had to make were fair, considering the downturn, he says. And he sees some positive signs that things will improve in the coming year.

However, while the worst may be over and he no longer fears losing his job, "I do fear it will take much longer to regain lost ground in terms of compensation, benefits and training than it took to lose it," says Thomas. His job satisfaction, he says, has also taken a dive. So although he's not actively seeking a new job, he's not ignoring job possibilities like he used to. And if an opportunity were to arise once the recovery takes hold, he says he would "most definitely" welcome it.

LUCKY, BUT LOW

There are likely a lot of people like Thomas in IT today, according to *Computerworld*'s 2009 Salary Survey. The results of our poll of 5,861 IT professionals show that salaries were flat this year, bonuses were way down, and benefits were reduced or eliminated (see charts at right). This year also saw increases in the percentages of respondents reporting canceled projects (35%, compared with 25% last year), training cuts (37% vs. 25%), budget cuts (65% vs. 53%), salary freezes (51% vs. 22%), and hiring freezes (48% vs. 33%). And that's just for the people who remain employed — 44% of respondents reported permanent layoffs at their

companies in the 2009 study, up from 28% in 2008.

It's no wonder that satisfaction is down (see charts, page 34), even among those who reported feeling lucky just to have a job. Some are like Jean-Sébastien Picard, IT manager at Polycor Inc., who is determined to stay positive despite a 10% pay cut. "I'm always happy at work, and I think it's our job to maintain a good atmosphere," he says. Others, such as Arthur MacLeod, systems administrator at Service Point USA, see silver linings in staff cuts, such as the opportunity to improve time management skills and increase cross-training.

But even for MacLeod, satisfaction is starting to wane. As he has watched colleagues get laid off, his own salary has been flattened, the bonus structure has been reworked, and training funds have been cut. A particular downer was when the company newsletter stopped circulating, since it had been providing state-of-the-company insights.

"Those stopped when the [workforce reductions] came about," MacLeod says. "It made you feel uneasy."

For others, dissatisfaction has hit hard. "It's hard to come to work," says a programmer at a big aerospace company, who asked to remain anonymous. Upper management has indicated that they will lay off at least 10% of the IT staff each year for the next five years, as well as increase outsourcing, he says. And company-provided training has disappeared. "There is no satisfaction," he says.

RELUCTANT MIGRATION

Some see low morale translating into corporate churn once the recovery takes hold (see "IT Exodus Looms as Satisfaction Wanes," page 36).

"As the environment feels less bad, people's willingness to consider new opportunities will improve," especially for those who have been asked to do a lot with less, says Tom Silver, vice president for North America at Dice Holdings Inc. In a poll of visitors to the Dice.com careers Web site, 74% of the respondents said they would at least consider a new opportunity, should it arise. Whereas IT professionals were busy keeping their heads down a year ago, now "they're at least lifting their heads and will listen," Silver says.

In *Computerworld*'s survey, nearly half (47%) of the respondents said they were passively or actively looking for a job, either within or outside their companies. Of those who weren't, nearly half said it was because of the poor job market.

Certainly, if you look at past recession-to-recovery cycles, the trend is for employees to look for an employment upgrade, says Dave Willmer, executive director at Robert Half Technology and a *Computerworld* columnist. But the workers would be better described as curious than restless, he says.

"We're still pretty deep into [the recession]," he says. "The stories we hear out there are that people might be looking, but if an offer is out there, it's tough to get them to move."

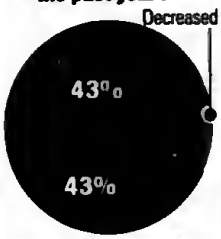
That's certainly the case

SALARIES FLATLINE

Salaries increased just **0.4%** across the board in 2009.

Senior managers (Base: 858)	0.0%
Middle managers (Base: 1,592)	0.5%
IT staffers (Base: 3,411)	0.3%

How has your base salary changed in the past year?



Average increase: 6%
Average decrease: 10%

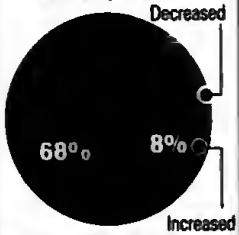
BASE 5,861 RESPONDENTS

BONUSES TAKE A BEATING

Bonuses took a big dive, dropping **10.8%** across the board in 2009.

Senior managers (Base: 858)	-14.9%
Middle managers (Base: 1,592)	-7.5%
IT staffers (Base: 3,411)	-9.0%

How has your bonus changed, compared with one year ago?



Average increase: 32%
Average decrease: 56%

BASE 5,861 RESPONDENTS

POWER OF THE PERK

The top perks and compensation offered other than cash bonuses:

Health benefits/ insurance	90%
Life insurance	82%
Matching 401(k) contributions	67%
Tuition reimbursement	61%
Flexible scheduling	58%
Mobile phones	48%
Plaques/awards/ gift certificates	37%
Telecommuting option	36%
Comp time	36%
Employee stock ownership program	24%
Additional time off/ sabbatical	22%
Stock purchase plans	22%
Profit sharing	20%
Dependent care support	17%
Company car	5%

BASE 5,742 RESPONDENTS. MULTIPLE RESPONSES ALLOWED

CASH, PLEASE

What matters most to you about your job?

Base pay	74%
Benefits	57%
Vacation time/ paid time off	41%
Job stability	39%
Flexible work schedule/ telecommuting/ working from home	33%
Challenge of job/ responsibilities	32%
Job atmosphere/ community	22%
Potential for career advancement and development	21%
Skill development/ education/training opportunities	20%
Knowing that my opinion and knowledge are valued	19%
Financial stability of company	19%
Bonus opportunities	14%

BASE 5,843 RESPONDENTS. MULTIPLE RESPONSES ALLOWED

SALARIES FLATLINE

Salaries increased just **0.4%** across the board in 2009.

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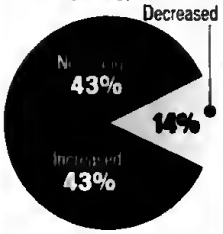
Middle managers (Base: 1,592)	**0.5%**
IT staffers (Base: 3,411)	**0.3%**

How has your base salary changed in the past year?



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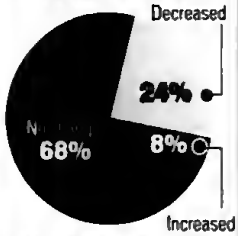

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Additional time off/ sabbatical	**22%**
Stock purchase plans	**22%**
Profit sharing	**20%**
Dependent care support	**17%**
Company car	**5%**

BASE: 5,742 RESPONDENTS
MULTIPLE RESPONSES ALLOWED

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BASE: 5,843 RESPONDENTS
MULTIPLE RESPONSES ALLOWED

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But even for MacLeod, satisfaction is starting to wane. As he has watched colleagues get laid off, his own salary has been flattened, the bonus structure has been reworked, and training funds have been cut. A particular downer was when the company newsletter stopped circulating, since it had been providing state-of-the-company insights.

"Those stopped when the [workforce reductions] came about," MacLeod says. "It made you feel uneasy."

For others, dissatisfaction has hit hard. "It's hard to come to work," says a programmer at a big aerospace company, who asked to remain anonymous. Upper management has indicated that they will lay off at least 10% of the IT staff each year for the next five years, as well as increase outsourcing, he says. And company-provided training has disappeared. "There is no satisfaction," he says.

RELUCTANT MIGRATION

Some see low morale translating into corporate churn once the recovery takes hold (see "IT Exodus Looms as Satisfaction Wanes," page 36).

SENIORS RULE

AVERAGE TOTAL COMPENSATION FOR 2009	$91,219
Senior management	$137,654
Midlevel management	$95,385
Staff and entry level workers	$77,594

"As the environment feels less bad, people's willingness to consider new opportunities will improve," especially for those who have been asked to do a lot with less, says Tom Silver, vice president for North America at Dice Holdings Inc. In a poll of visitors to the Dice.com careers Web site, 74% of the respondents said they would at least consider a new opportunity, should it arise. Whereas IT professionals were busy keeping their heads down a year ago, now "they're at least lifting their heads and will listen," Silver says.

In *Computerworld*'s survey, nearly half (47%) of the respondents said they were passively or actively looking for a job, either within or outside their companies. Of those who weren't, nearly half said it was because of the poor job market.

Certainly, if you look at past recession-to-recovery cycles, the trend is for employees to look for an employment upgrade, says Dave Willmer, executive director at Robert Half Technology and a *Computerworld* columnist. But the workers would be better described as curious than restless, he says.

"We're still pretty deep into [the recession]," he says. "The stories we hear out there are that people might be looking, but if an offer is out there, it's tough to get them to move."

That's certainly the case

ON THE HORIZON

Over the next 12 months, do you expect your workload and responsibility to:

Increase	66%
Decrease	2%
Remain the same	32%

Over the next 12 months, do you expect training to:

Increase	13%
Decrease	34%
Remain the same	53%

BASE 5,830 RESPONDENTS

WHERE THE JOBS ARE

The IT skills that companies will hire for in the next 12 months:

Application development	53%
Help desk/IT support	34%
Networking	30%
Network administration	28%
Security	27%
Database analysis	27%
Business intelligence	26%
General IT functions in multiple areas	25%
Web design/development	21%
Data management	18%

BASE 970 RESPONDENTS WHO EXPECT TO HIRE NEW STAFFERS IN THE NEXT 12 MONTHS

SIGN OF THE TIMES

Benefits are the second most valued aspect of respondents' jobs (after cash), yet many companies have cut benefits packages in the recent downturn.

The top 5 perks/benefits reduced or eliminated entirely in the past year:

1. Matching 401(k) contributions
2. Tuition reimbursement
3. Profit sharing
4. Health benefits/insurance
5. Mobile phones

VALUE OF EXPERIENCE

Survey respondents who have spent at least a quarter-century in the IT field earn higher pay overall, but their total compensation dropped a bit this year, on average.

YEARS IN IT	AVERAGE SALARY	AVERAGE BONUS	2009 TOTAL	2008 TOTAL	PERCENTAGE CHANGE
Less than 5 years	$53,211	$3,937	$57,148	$56,018	2.0%
5 to less than 10 years	$69,048	$4,338	$73,386	$73,391	0.0%
10 to less than 15 years	$81,013	$5,176	$86,189	$86,071	0.1%
15 to less than 25 years	$93,256	$6,449	$99,705	$100,633	-0.9%
25 years or more	$100,723	$6,606	$107,329	$108,052	-0.7%

UNEQUAL FOOTING

Three common titles and a comparison of what men and women earn:

	MEN	WOMEN
CIO/VICE PRESIDENT OF IT	$169,189	$139,165
PROJECT MANAGER	$106,015	$105,145
IT MANAGER	$88,713	$84,060

EQUAL PAIN

AVERAGE 2009 SALARY	
MALE IT WORKERS $86,683	FEMALE IT WORKERS $79,601
UP 0.4% FROM LAST YEAR	UP 0.1% FROM LAST YEAR
AVERAGE 2009 BONUS	
MALE IT WORKERS $5,984	FEMALE IT WORKERS $4,304
DOWN 11.6% FROM LAST YEAR	DOWN 5.0% FROM LAST YEAR

BASE 4,881 MEN, 968 WOMEN

for MacLeod, who would gladly take a position that would shorten his commute, which is currently over an hour each way. However, he says, he would have to have "no hesitation" about changing in order to pursue it.

A MONEY MOVE

In many cases, a desire to recoup lost compensation is fueling the job hunt. In *Computerworld*'s survey, that was the main reason respondents gave for wanting to make a move. However, IT workers are still expressing ambivalence about rocking the boat to improve their finances.

Roger Tower has had a front-row seat to the buckling of the economy. Laid off over a year ago from an employer in the Las Vegas gaming industry, he took a 10% pay cut to join Kalco Lighting as an IT manager, then he was hit with an additional 5% pay cut this past spring. His insurance benefits cost twice as much as they did under his former employer. All training was suspended at his previous job, and in his current position, he has been unable to add training dollars into the budget.

Still, he says, "I feel lucky to have this job, and I'd love to stay." But should a higher-paying opportunity present itself, "for the sake of my family, I would have to look at changing," he says. "I hope that doesn't happen."

Ambivalence is greatest among those who feel positively about the way they've been treated during the recession. A programmer at a large investment firm says he highly values the culture at his current employer, where he has worked for 12 years. He appreciates the respect employees are shown and the open-door management style.

However, the compensation conundrum is starting to wear on him. Small increases in pay don't come close to bringing his salary level to what he earned six years ago, the programmer says. In the end, "more money is great," he says, "but the best culture balanced with salary has been my current employer, which makes it very likely [I'll] stay where I'm at."

Still, it's hard to predict when and if jobs will materialize to meet job seekers' aspirations. According to a survey of 501 hiring managers conducted by Robert Half International and CareerBuilder, employers expect to hire in their technology departments first once the economy improves.

However, employment is a lagging factor in any recovery, Silver warns. "Although there are certainly signs of life in the general economy," he says, "employment takes the longest to recover."

Dice is seeing a higher number of openings in New York and Silicon Valley than it did in January, which Silver says is encouraging but not a definite harbinger of a hiring uptick for the rest of the country. "The first thing that has to happen is employers need to lift salary freezes," he says. "Then demand needs to pick up, and from there, salaries should improve." ■

Brandel *is a* Computerworld *contributing writer. Contact her at marybrondel@verizon.net.*

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FREE free BlackBerry Smartphone of equal or lesser value. New 2-yr. activation on voice plan with email feature or email plan req'd per phone

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HP EliteBook and Intel® vPro™ Technology: Rx for Healthcare Mobility

WITH THE SUDDEN INFLUX of new, productivity-enhancing applications, even the most tethered of industries are anxious to go mobile or enhance their current mobile technology. Nowhere is this more evident than in the healthcare industry, which is set to make great strides, thanks to advances such as electronic medical records (EMR) and remote diagnosis applications. However, for IT organizations to fully embrace mobility, they must be assured that the hardware and software supporting these applications are durable, reliable, energy efficient and secure.

HP's EliteBook business notebook portfolio featuring HP Professional Innovations and Intel® vPro™ technology is exactly what the doctor ordered for healthcare and other mobility-seeking environments, according to industry experts. These notebooks have the flexibility, durability, wireless infrastructure and hardware-assisted security and manageability to give IT managers the confidence that users will be able to thrive in this new environment.[1]

"Few things are designed from the inside out to be amazing," says Rob Enderle, principal of The Enderle Group, a consulting firm in San Jose, Calif. "If anyone would have told me a year ago that I would find business-class and professional mobile workstations to be the exceptions, I would have laughed in their face. However, the HP EliteBook Mobile Workstations and the HP business-class workstations are amazing products."

In healthcare, clinicians, physicians, nurses and patients all need immediate access to information, such as EMR, from the point of care. They also need the ability to engage in clear, but secure, communications among themselves. Therefore, they require lightweight, high-performance notebooks with extended battery life and built-in security. With these features, they can provide care from patient bedsides, upload lab results, write prescriptions and orders, access schedules, and review important digital images such as X-rays or MRIs without worrying about recharging, privacy breaches and other common obstacles.[1]

Durability

Hospitals, doctors' offices and other healthcare locations can be hard on mobile devices. HP EliteBooks, with some weighing in at less than 5 pounds, have a DuraCase magnesium design that is business-rugged. Some Elitebooks are equipped with a 4-point lockdown mechanism that allows the notebook to stay aligned even if it sustains a fall.[2] In addition, the machines are protected from common keyboard mishaps thanks to a thin layer of Mylar film that minimizes the risk to sensitive, critical components, and HP DuraKeys, which makes the keys 50 times more resistant to wear and tear.

A final feature of the HP EliteBook that protects it from damage is the HP 3D DriveGuard, which physically secures the drive if the machine is dropped. HP 3D DriveGuard is an accelerometer on the drive that parks the heads of the hard drive to protect data during impact.

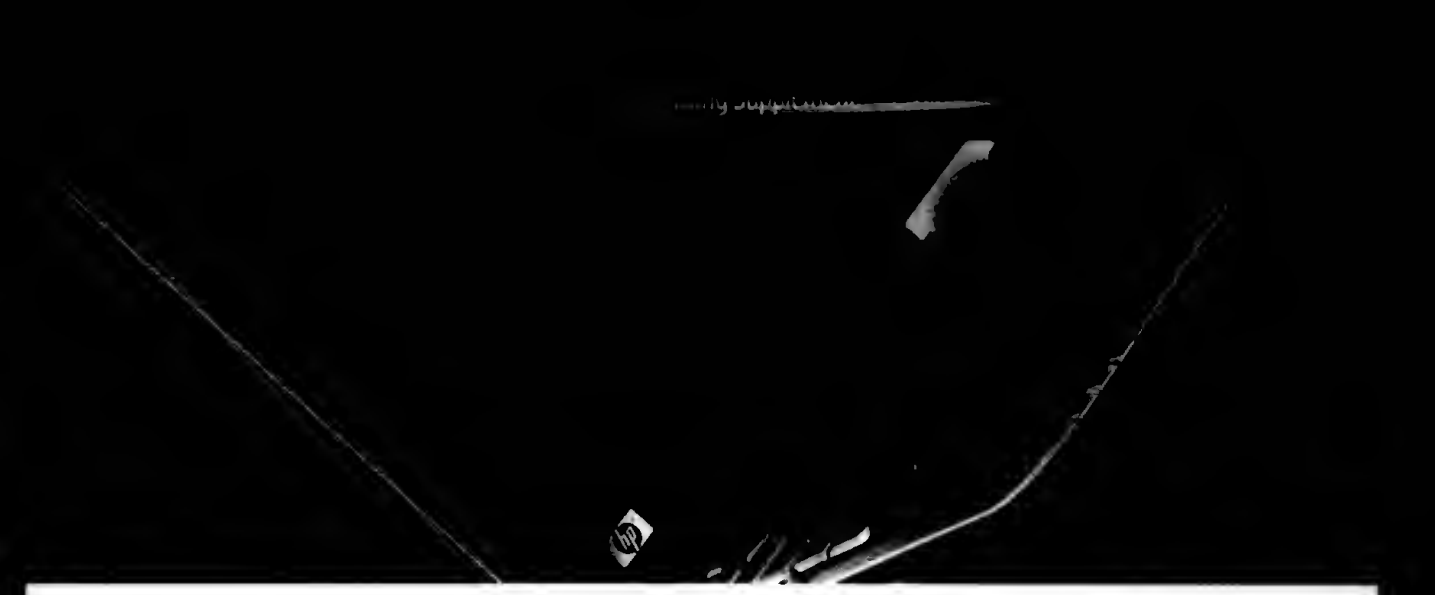
More Power

In addition to durability, users in healthcare environments also need assurance that they can get through a shift, even while using resource-intensive applications, without having to stop and recharge their notebooks.

HP EliteBook notebooks are energy efficient and have extended battery life. They meet the U.S. government's Energy Star program requirements as well as the Electronic Product Environmental Assessment Tool (EPEAT). Extremely durable solid state drives from Intel, which generate less heat and noise and consume 50% less power than standard hard drives, and default power settings help extend runtime. By combining the solid state drives, energy-efficient Intel® Core™2 Duo processors,[3] power management, a state-of-the-art LED display and HP's Ultra Capacity Battery, users can achieve up to 24 hours on a properly

1. Wireless access point and Internet service required. Availability of public wireless access points limited.

2. Test results are not a guarantee of future performance under these test conditions.



configured 6930p with Ultra Capacity Battery.[4]

Studies have shown that by upgrading from 4-year-old desktop PCs to notebooks with integrated Intel vPro technology, healthcare organizations can reduce energy consumption significantly.

Quick and Secure

While pulling up records from a patient's bedside seems like nirvana compared with older days, it could quickly become frustrating without enhanced speed and security.

HP Professional Innovations also helps ensure that users function in a secure environment without the constant need for IT intervention. For instance, with Spare Key, if users lose or forget their password, they can still access data if they can answer several predetermined questions. This avoids disruption in patient care as users wait for IT to reset their passwords. They also can use Credential Manager for HP ProtectTools to facilitate safe, single sign-on and guard against unauthorized notebook access.

To assure compliance in safeguarding sensitive information, IT can erase a notebook that is ready to be decommissioned or reassigned using HP Disk Sanitizer, and users can manage their own file deletion using File Sanitizer.[5] Also, with Intel vPro technology,[6] each machine has added protection against viruses and attacks with programmable defense filters.[7,8] IT organizations can rely on Intel vPro technology to help ensure enhanced security with faster patch saturation and perform faster, more accurate asset inventories.

With Intel vPro technology, remote configuration, diagnosis, isolation and repair of infected PCs are easier as well, even if the PCs are outside of the corporate firewalls. This reduces the need for IT to travel to physicians' offices or other off-site locations within the healthcare organization. Finally, to assist with patient privacy, the HP EliteBook has display filters that prevent others from seeing their screens from an angle.

Even though they are easily one of the most demanding environments, healthcare organizations can achieve highly productive mobility with HP EliteBook notebooks. With the superior benefits of HP Professional Innovations and Intel vPro technology built in, the HP EliteBook is an outstanding choice for flexibility, durability, reliability, wireless connectivity, security and manageability.

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To find out how HP can help your hospital run more efficiently, call 1-866-273-8797.

Sandra Gittlen *is a Massachusetts-based technology writer and former senior editor at* Network World.

3 64-bit computing on Intel architecture requires a computer system with a processor chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See www.intel.com/info/em64t for more information. Dual Core is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology.

4 Up to 24 hours requires separately purchased Ultra Capacity Battery and customer download of the latest Intel graphics driver and HP BIOS. Notebook must be configured with optional Intel 80GB SSD drive and HP Ultra-bite LED display and requires XP operating system. Battery life will vary depending on the product model, configuration, loaded applications, features, and power management settings. The maximum capacity of the battery will decrease with time and usage.

5 For the use cases outlined in the DOD 5220.22-M Supplement.

6 Some functionality of this technology, such as Intel Active management technology and Intel Virtualization technology, requires additional third-party software in order to run. Availability of future "virtual appliances" applications for Intel vPro technology is dependent on third-party software providers. Compatibility with future "virtual appliances" and Microsoft operating system is yet to be determined.

7 Intel® vPro technology includes Intel Active Management Technology (Intel AMT). This technology requires the computer system to have an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. With regard to notebooks, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see www.intel.com/vpro.

8 The Intel Execute Disable Bit feature combined with Microsoft Windows XP Service Pack 2 provides additional protection against buffer overflow viruses similar to MSBlaster, Slammer and SoBig.F. Execute Disable Bit (XD) is only enabled by certain operating systems including the current versions of Microsoft® Windows®, Linux and BSD Unix. Protection of the OS or applications may not be enabled by default. After properly installing the appropriate operating system release, users must enable the protection of their applications and associated files from buffer overrun attacks. Consult your OS documentation for information on enabling XD. Contact your application software vendor for information regarding use of the application in conjunction with XD. It is strongly recommended that users continue to use third-party anti-virus software as part of their security strategy.

Senior Management Positions

JOB TITLE	AVERAGE SALARY	AVERAGE BONUS	2009 TOTAL	2008 TOTAL	PERCENTAGE CHANGE
CIO/vice president of IT					-1.2%
Chief security officer					-4.6%
Chief technology officer					-4.7%
Director of IT operations					-0.9%
Director of systems development					-0.7%
Internet technology strategist					0.0%

Middle Management Positions

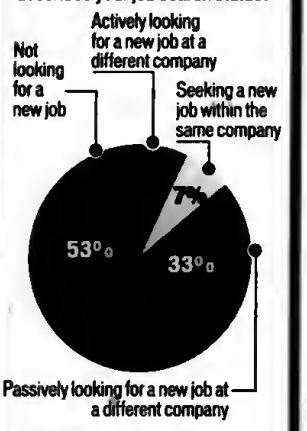
Application development manager					-1.1%
Communications manager					-0.5%
Computer operations manager					-0.1%
Database manager/ data warehousing manager					-1.6%
E-commerce/ Internet manager					-0.8%
Help desk/ tech support manager					-0.7%
Information security manager					-2.3%
IT manager					0.0%
Network manager					0.0%
Product manager					-3.4%
Project manager					0.0%

Staff and Entry-Level Positions

Business intelligence analyst					-1.6%
Communications specialist					-1.1%

EYES OPEN

Which one of the following best describes your job search status?



BASE 5,861 RESPONDENTS

TIME FOR A CHANGE

Here's what job hunters say they're looking for:

Higher compensation	59%
Career opportunities	45%
More personal fulfillment	43%
More interesting/ challenging work	42%
More responsibility	28%
More job stability	26%
A more stable company	23%
Security from layoffs	23%
Less stress	22%
A better personal/ family situation	21%

BASE 2,715 RESPONDENTS
MULTIPLE RESPONSES ALLOWED

TIME TO STAY

The top reasons they *aren't* looking for a new job:

Satisfied with current job responsibilities	67%
Satisfied with current compensation	49%
Satisfied with company culture	47%
Job market is poor/ few opportunities	47%
Other	11%

BASE 3,125 RESPONDENTS
MULTIPLE RESPONSES ALLOWED

BIG GREEN

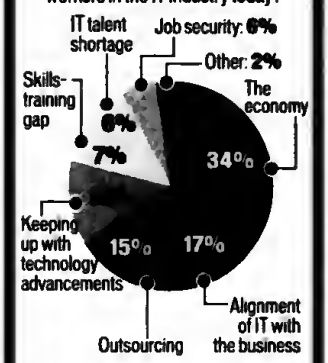
Only 8% of respondents said they wouldn't consider changing jobs for any reason. But of those who would, these are the top five enticements:

1. Salary increase	76%
2. Job security	41%
3. Work/life balance	36%
4. More vacation time	33%
5. Large sign-on bonus	32%

BASE: 5,836 RESPONDENTS. MULTIPLE RESPONSES ALLOWED

RECESSION TENSION

What's the biggest challenge facing workers in the IT industry today?



BASE: 5,840 RESPONDENTS

BUDGET BUSTERS

The top factors affecting working conditions:

Budget cuts	66%
Increased workload (due to staff cuts)	51%
Salary freeze	51%
Hiring freeze	48%
Permanent staff layoffs	44%
Training cuts	37%
Canceled project(s)	35%
Contract staff layoffs	23%
Increased outsourcing	17%
Salary cuts	16%
Merger/acquisition	12%
Unpaid work furloughs	8%
Contract/consultant hires	7%
Decreased outsourcing	5%
Increased hiring/staffing	3%

BASE: 5,010 RESPONDENTS

Staff and Entry-Level Positions

JOB TITLE	AVERAGE SALARY	AVERAGE BONUS	2009 TOTAL	2008 TOTAL	PERCENTAGE CHANGE
Computer operator/ lead computer operator					-1.4%
Database administrator					0.1%
Database analyst					-2.9%
Database architect/ developer					-1.4%
Help desk/tech support specialist					-0.2%
Information security specialist					-0.4%
Network administrator					0.0%
Network engineer/ wireless network engineer					-0.9%
Programmer/analyst					-0.3%
Project leader					-1.4%
Quality assurance specialist					-0.7%
Software developer					-1.6%
Software engineer					0.0%
Systems analyst					-4.9%
Senior systems analyst					-0.3%
Storage administrator/ architect					-1.4%
Systems administrator					-0.4%
Systems architect					-0.5%
Systems programmer					-0.6%
Technical trainer					-1.5%
Technician					-3.9%
Technology/business systems analyst					-0.1%
Web developer					-0.2%
Webmaster					-2.0%

A Sampling of Average Total Compensation by Region

	New England	Middle Atlantic	South Atlantic	North Central	South Central	Mountain	Pacific
CIO/vice president of IT		$171,117		$148,555		$143,952	
Director of IT		$116,619		$111,224		$125,290	
IT manager		$86,096		$82,630		$80,460	
Systems administrator		$71,312		$67,493		$69,306	
Help desk/tech support specialist		$52,519		$49,390		$56,092	
Project manager		$112,277		$96,516		$96,179	
Programmer/analyst		$78,755		$96,516		$99,970	
Technology/business systems analyst		$90,092		$75,455		$69,488	
Network administrator		$64,473		$60,815		$55,204	
Software engineer		$90,483		$99,163		$102,802	
Database administrator		$82,219		$80,041		$91,125	
Systems architect		$106,336		$101,962		$101,177	

RED TEXT: The total base for this job title in this particular region was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

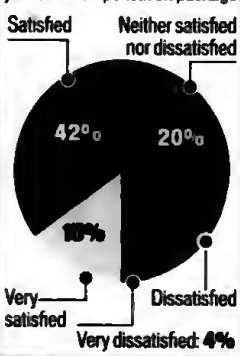
BLUE TEXT: The total base for this job title in this particular region was fewer than 16 responses but more than nine. These figures should be used for comparison only.

REGIONS

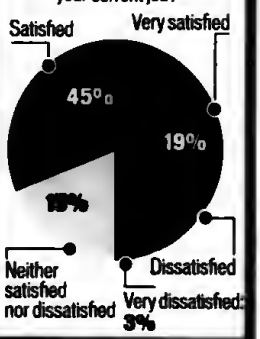
New England: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island
Middle Atlantic: New York, New Jersey, Pennsylvania
South Atlantic: Delaware, District of Columbia, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida
North Central: Wisconsin, Michigan, Illinois, Indiana, Ohio, North Dakota, South Dakota, Minnesota, Nebraska, Iowa, Kansas, Missouri
South Central: Kentucky, Tennessee, Mississippi, Alabama, Oklahoma, Arkansas, Louisiana, Texas
Mountain: Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico
Pacific: Alaska, Washington, Oregon, California, Hawaii

Satisfaction Meter

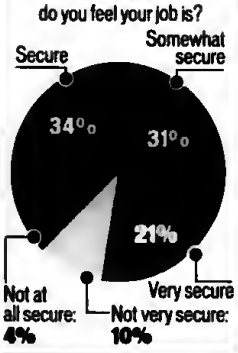
MONEY
How satisfied are you today with your total compensation package?



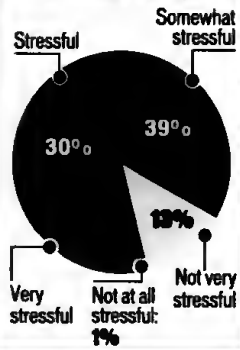
CURRENT JOB
How satisfied are you with your current job?



SECURITY
How secure do you feel your job is?



STRESS
How stressful is your job?



BASE FOR ALL SATISFACTION CHARTS: 5,856 RESPONDENTS

A Sampling of Average Total Compensation by Industry

	Director of IT		Project manager		Technology/business systems analyst
Banking **$130,843**	Education **$96,591**	Manufacturing (noncomputer) **$89,543**	Computer services/ consulting **$103,555**	Education **$44,895**	Computer services/ consulting **$84,896**
Education **$140,853**	Health care **$107,101**	Government **$81,419**	Government **$101,966**	Manufacturing (noncomputer) **$49,489**	Manufacturing (noncomputer) **$88,807**
Finance/accounting **$157,480**	Manufacturing (noncomputer) **$118,894**	Education **$72,242**	Legal/insurance/ real estate **$94,352**	Computer services/ consulting **$49,338**	Health care **$70,180**
Computer services/ consulting **$198,613**	Government **$95,048**	Health care **$83,476**	Health care **$114,147**	Government **$57,423**	Government **$77,448**
Health care **$161,764**	Computer services/ consulting **$144,906**	Computer services/ consulting **$94,944**	Manufacturing (noncomputer) **$105,182**	Health care **$46,542**	Legal/insurance/ real estate **$85,659**
Legal/insurance/ real estate **$204,773**	Legal/insurance/ real estate **$124,390**	Legal/insurance/ real estate **$103,050**	Manufacturing (computer) **$118,414**	Finance/accounting **$50,735**	Education **$68,989**
Manufacturing (noncomputer) **$187,404**	Retail trade **$118,449**	Finance/accounting **$109,217**	Education **$80,457**	Legal/insurance/ real estate **$50,656**	Finance/accounting **$79,858**
Government **$126,462**	Entertainment/ marketing/advertising **$124,215**	Retail trade **$87,499**	Finance/accounting **$96,383**	Telecommunications **$56,165**	

Network administrator		Programmer/ analyst		Systems administrator	
Education **$60,338**	Telecommunications **$77,234**	Government **$82,227**	Computer services/ consulting **$93,178**	Education **$60,491**	Health care **$70,446**
Manufacturing (noncomputer) **$55,969**	Computer services/ consulting **$82,017**	Legal/insurance/ real estate **$75,060**	Manufacturing (computer) **$107,289**	Health care **$77,888**	Legal/insurance/ real estate **$75,875**
Government **$66,492**	Health care **$86,308**	Health care **$77,346**	Manufacturing (noncomputer) **$84,297**	Computer services/ consulting **$76,284**	Computer services/ consulting **$77,867**
Health care **$59,943**	Education **$64,731**	Computer services/ consulting **$74,894**	Telecommunications **$97,213**	Government **$65,252**	Government **$74,176**
Computer services/ consulting **$44,431**	Manufacturing (noncomputer) **$71,711**	Education **$80,289**	Defense/aerospace **$98,131**	Manufacturing (noncomputer) **$67,477**	Energy/utilities **$89,877**
Agriculture/ construction **$62,235**	Government **$82,550**	Manufacturing (noncomputer) **$70,953**	Health care **$83,091**	Legal/insurance/ real estate **$70,323**	Manufacturing (noncomputer) **$94,646**
Legal/insurance/ real estate **$58,774**	Legal/insurance/ real estate **$87,240**	Banking **$96,674**	Banking **$88,838**	Entertainment/ marketing/advertising **$66,922**	
		Transportation/ logistics **$75,343**	Finance/accounting **$105,020**	Finance/accounting **$76,668**	

RED TEXT: The total base for this job title in this particular industry was fewer than 30 responses but more than 15. These figures should be used for comparison only, because they don't constitute a statistically significant sampling.

BLUE TEXT: The total base for this job title in this particular industry was fewer than 16 responses but more than nine. These figures should be used for comparison only.

■ OPINION

Adam Lawrence

IT Exodus Looms as Satisfaction Wanes

THERE ARE no huge surprises when it comes to IT pay in *Computerworld*'s Salary Survey this year. Salaries are flat, benefits were reduced, and bonuses were slashed or eliminated. And the *Computerworld* survey and Yoh's own data show that employees in nearly every vertical industry are reporting that their workloads have increased and their opportunities for training have decreased. But it's the resulting erosion in job satisfaction and morale that might give IT employers an unexpected jolt.

Workers might have been willing to deal with unsatisfactory employment situations during the recession because they feared there were no other options. But now that the economy is starting to turn a corner, a major shift is taking place. Employees are on the move.

Some companies are easing their hiring freezes. New positions are starting to open up, and many employees will be leaping at new and better opportunities. Therefore, employers should expect substantial turnover in 2010.

The talent pool will become more like an ocean, and large, aggressive companies will cast a net into it to snare the best workers. You might think this would hurt smaller companies that can't pay as much as large employers, but there are ways all companies can stem talent and knowledge loss. Here are some approaches:

Develop close relationships with your employees. It's important for managers to build strong ties with their employees no matter how the economy is doing, but it's crucial when times are tough. It helps when managers have open and honest conversations with employees about their job satisfaction. Managers can then understand where employee dissatisfaction lies and position themselves to address it. Close relationships also build trust and can keep employees motivated to support their managers and help the company succeed.

■ Now that the economy is starting to turn a corner, employees are on the move.

Improve your employment brand. People want a great place to work. The key is to create an atmosphere that motivates, respects, rewards and cultivates the skills and growth of employees. While that was probably difficult to do during the past year, it's crucial that companies don't lose sight of that goal, especially in hard times.

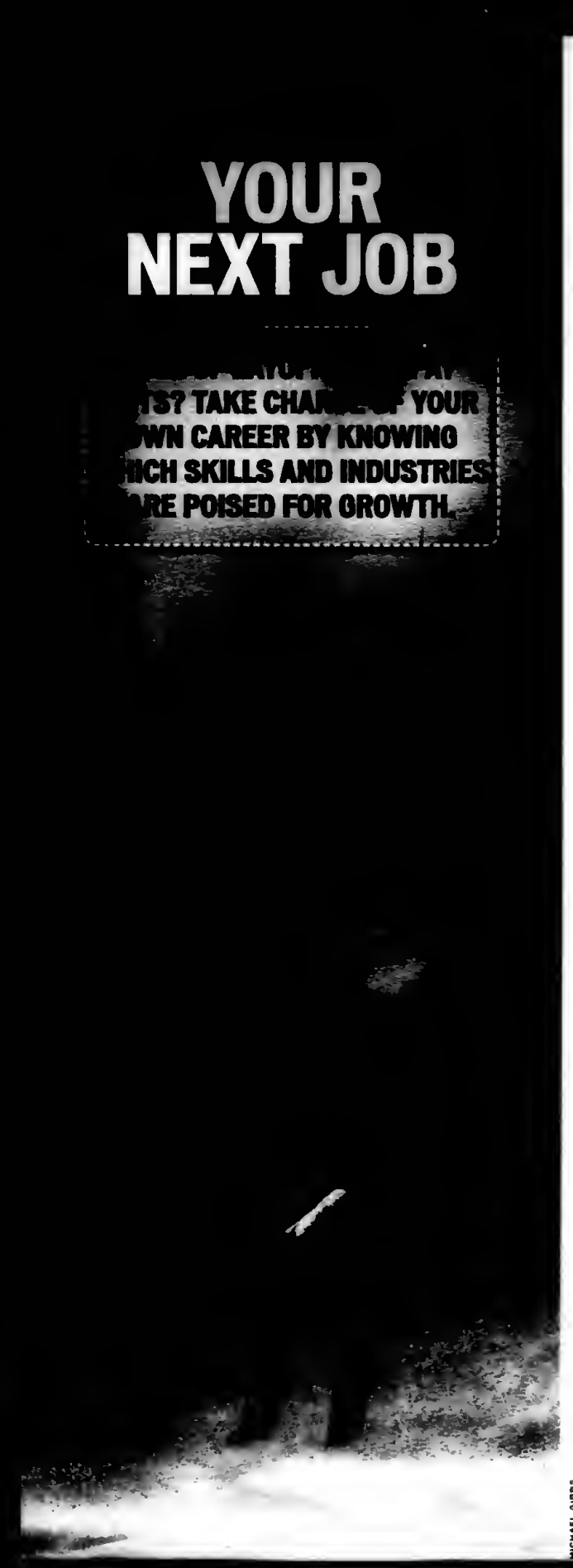
If you want your employees to stay, they need to understand how valuable they are to the organization. Acknowledge their accomplishments, whether in some form of companywide communication or through small perks or gifts.

Give your best talent a promotion or a raise. You probably already know who your rainmakers are. They are the closers, the innovators, the thought leaders, the strategic advisers. And while in theory everyone can be replaced, finding people who can fill the shoes of high-impact employees could prove to be difficult. One of the best ways to retain the stars is to bite the bullet and give them a raise, a bonus, a promotion or some other incentive.

Fill positions now if you anticipate that they will open up later. This approach involves a calculated risk: predicting what your staffing needs will be in the coming year — whether as a result of turnover, product line expansion or some other event — and hiring for those positions right away. The advantage is that it shows your employees and the market that you're growing. The downside is that you overspend on staff in the short term. Even worse, if it turns out you've overestimated staffing needs, you might have to downsize.

These strategies can help stem talent and knowledge loss as the economy improves. But employers must decide for themselves which options are right for them. ■

Adam Lawrence *is vice president of service delivery at Yoh, a talent and outsourcing service provider and a unit of Day & Zimmermann.*



MICHAEL GIBBS

Industries On the Upswing

Pick the right industry and watch your salary, and future job prospects, rise.

By Thomas Hoffman

THE 1.6% pay increase reported by government IT professionals in *Computerworld*'s 2009 Salary Survey might not seem like much, but it's better than what Bruce Walton and other California state IT workers have seen recently.

Since July, Walton and other employees for the state of California have been forced to take three furlough days per month because of budget constraints. The furlough days result in a 14% pay cut, and the policy is expected to remain in place at least throughout the state's current fiscal year, says Walton, a network administrator for the California Energy Commission in Sacramento.

Times have been lean for Walton and other California state workers since their union obtained a 5% raise in 2006, Walton's first year in his role. Despite the state's budget problems, Walton, a 17-year IT veteran, says he likes his job, along with the security that a government position offers. So he's standing pat and hoping that his base pay improves "down the road."

According to this year's survey results, there are a handful of sectors where compensation inched up from last year, including energy/utilities (1.3%). And demand for IT professionals in that sector continues to be strong, says Dave Willmer, executive director of Robert Half Technology in Menlo Park, Calif., and a *Computerworld* columnist.

Meanwhile, some industries where compensation for IT professionals has historically lagged, such as education (1.4%), are experiencing a remuneration renaissance. A key factor: When the economy is down, more people go back to school to earn degrees to help them in the job market, says Willmer. As enrollments go up, schools require more IT support professionals, says David Van De Voort, an IT workforce specialist at Mercer LLC in Chicago.

WHERE THE PAY IS HOT

Here are some of the industries where IT compensation is on the upswing, with a look at some of the factors behind these trends.

Government: Job security, solid pension plans and attractive benefits are a few of the reasons why government IT professionals say the public sector offers favorable career prospects, despite the revenue shortages that are dogging cities and states. Plus, federal stimulus money is leading to more IT projects, which in turn are sparking demand for IT professionals at the federal level.

Still, there are drawbacks to working in the public sector, including a lack of mobility, since senior IT workers tend to remain in their roles for quite a while, say some government IT professionals.

Although he didn't receive a raise this year because of budget constraints, Dennis O'Connor, a programmer/analyst for the city of Alexandria, Va., says he enjoys the autonomy he has in his role supporting an application that's used by the city's housing, building and fire code enforcement officials.

Plus, the city's pension plan is better than anything O'Connor has received in private sector jobs. "Already, the retirement I built up here after nine years is more than I got from Wachovia after 26 years," says O'Connor.

Health care: There are many reasons why the health care industry is an appealing destination for IT professionals, beyond the visible impact that technology can have on patients' well-being. For starters, the sector is less affected by economic cycles. Plus, the Obama administration recently set aside $1.2 billion in federal stimulus money for deployments of electronic medical records systems and other health care IT initiatives, notes Terry Erdle, senior vice president of skills certification at the Computing Technology Industry Association (CompTIA) in Oakbrook Terrace, Ill.

"Health care IT shops are among the busiest I deal with — they just have so much going on," says Mercer's Van De Voort.

At Texas Health Resources, PMO manager Joel Verinder says he likes the fact that senior management maintains an open-door policy, encouraging employees to propose ideas for cutting costs or improving patient care. Verinder recently suggested a new approach for IT workers to collaborate and drive innovation at the Arlington, Texas-based health care provider. The idea was approved by the company's CIO and is being tested, he says.

"I'm very happy to be working here," says Verinder, who joined the health care company in 2008 after spending 12 years working in a range of IT roles in the public sector and the airline, telecommunications and automotive finance industries. At Texas Health Resources, he says, "it seems like you have a chance to do a little bit more to improve the bottom line."

Energy/utilities: Working in the energy industry has been unlike any other IT role that Neal Steik has held during a 33-year career that has included stints at an HMO, at a law firm and in the insurance industry.

The energy/utilities industry is "much less political than other industries I've worked in," says Steik, who is supervisor of workstation support at Puget Sound Energy in Bellevue, Wash. At PSE, there's no dress code, layoffs are unheard of, and there's a family-oriented atmosphere among both blue- and white-collar workers, says Steik.

Although Steik took a $20,000 pay cut when he joined PSE in early 2008, that was offset by health care benefits that are better than those available through his previous employer. For instance, even though the last company Steik worked for covered 100% of his own health care benefits, he had to pay $7,000 out of pocket to cover his wife's insurance. "Now, everything's covered," he says.

Some segments of the energy industry also expose IT professionals to leading-edge technologies. For instance, Aaron Van Cleave, an infrastructure architect at Aera Energy LLC, an oil and gas producer in Bakersfield, Calif., says he was recently asked by the company's architecture board to offer his opinion on some oil well

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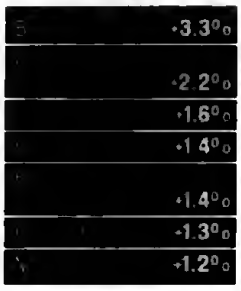
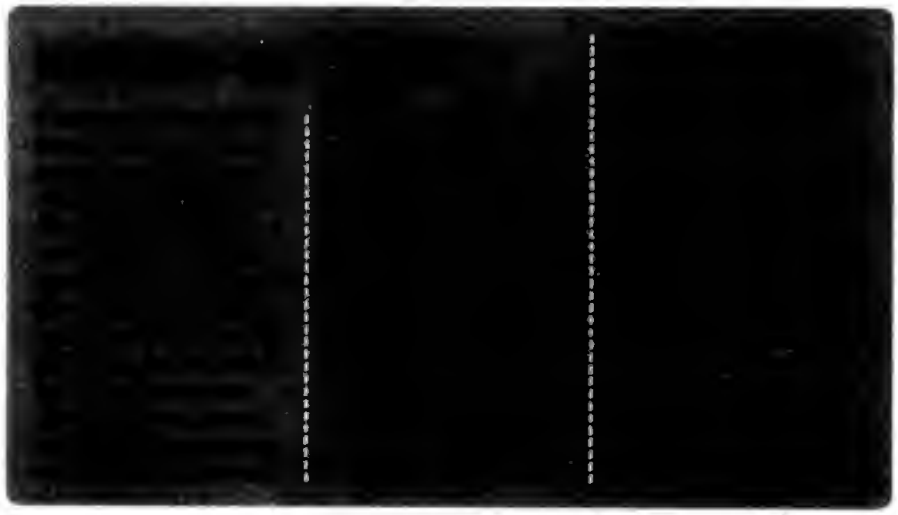
Largest average increases in total compensation, by industry:



RECESSION INDUSTRIES

Largest average decreases in total compensation, by industry:

Manufacturing, computer	-4.1%
Wholesale trade	-3.1%
Automotive	-2.7%
Mining/agriculture	-2.5%
Banking	-2.5%
Computer dealer/reseller	-2.2%



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For any IT professionals considering a switch to the energy/utilities industry, "if net pay is their primary driver, I'd tell them to look elsewhere," says Steik. But if they're considering the total compensation package, including benefits, "the utilities industry is in the ballpark," he adds.

Defense/aerospace: One of the unique characteristics of the defense and aerospace industry is that it boasts a highly educated workforce made up of engineers who specialize in a variety of disciplines. That's certainly true at The Aerospace Corp., an El Segundo, Calif.-based organization that provides technical and scientific research and development services to the U.S. Air Force and NASA.

Three quarters of the company's 4,000 employees have master's degrees, and a quarter of them are Ph.D.s, says John Martillo, director of enterprise systems and storage at the nonprofit company.

That kind of brainpower feeds into the corporate culture. "The low turnover rate says it all — it's not because they're being paid more for their level of education and industry experience," says Martillo, who was involved in guidance navigation and rocket performance initiatives at the company prior to becoming an IT director eight years ago. "It's really the working environment. Some of the people here are the world's renowned experts in their fields. It has a collegial feel that people find very attractive."

Last year, members of the company's technical staff received 3.5% to 4% salary increases. "From an IT standpoint," says Martillo, "people here are slightly better paid than they would be in some other industries."

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Generally speaking, the pace at the university "isn't nearly as aggressive as other places I've worked," says Pechan, who received a 9% pay increase when she rejoined the school.

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Hoffman is a freelance writer in New York. You can contact him at tom.hoffman24@gmail.com.

Skills on The Rise

Be in the right place at the right time with the talents employers want.

By Mary K. Pratt

FRANK SIRIANNI finds himself in an unlikely situation during this recession: He's having trouble filling an IT position.

Sirianni, vice president and CIO at Fordham University in New York, already tried to hire a director of business intelligence once, but he couldn't. He figured it was the age-old principle of supply and demand: There weren't enough qualified people to fill all the open slots.

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Sirianni's situation parallels the findings of *Computerworld*'s 2009 Salary Survey. The title of information security manager had the highest total compensation increase in this year's survey, followed by network engineer/wireless network engineer, business intelligence analyst, software developer and storage administrator/architect/engineer.

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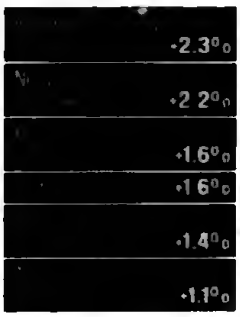

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Product manager	-3.4%
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HARDEST-HIT SECTORS

While some have fared better than others, IT professionals in industries that have been clobbered by the global recession, particularly financial services and manufacturing, have generally seen their compensation take a nose dive. According to *Computerworld*'s 2009 Salary Survey, IT workers in the computer manufacturing sector experienced an average 4.1% decrease in total compensation, followed by their peers in the wholesale trade (-3.1%) and automotive (-2.7%) industries.

Meanwhile, IT professionals in the banking sector saw their bonuses get slashed by a whopping 33.2% on average in the past year, and those in the legal/insurance/real estate industries have had their bonuses drop an average of 20.5% since 2008.

"It's almost the biblical 'the first shall be last and the last shall be first,'" says Mercer IT workforce specialist David Van De Voort, referring to the fact that traditionally well-compensated IT professionals have experienced a big drop in pay while their counterparts in historically low-paying sectors, such as education, are seeing an uplift.

The good news is that many IT professionals in hard-hit industries should see spikes in incentive pay once business conditions begin to improve, Van De Voort says.

– THOMAS HOFFMAN

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Biggest average increases in total compensation, by job title

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Network engineer/wireless network engineer	+2.2%
Business intelligence analyst	+1.6%
Software developer	+1.6%
Storage administrator/architect/engineer	+1.4%
Application development manager	+1.1%

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HARDEST-HIT JOB TITLES

Few IT professionals would call 2009 a banner year for pay increases, but some IT job titles suffered especially tough cuts. Those that fared worst included systems analyst, down 4.9% in total compensation since 2008; technician, down 3.9%; and product manager, down 3.4%.

However, such pay cuts don't signal a death sentence for these positions. Analysts and IT leaders say the fact that survey respondents in these positions reported losses is likely a sign of both the sagging economy and changes in the IT field.

Todd Thibodeaux, president of CompTIA, says the drop in compensation might stem from an increase in the number of employees competing for those positions, which are often lower in the IT organization. Those jobs attract recent graduates, people transitioning into IT from other fields, and even experienced out-of-work IT professionals who are willing to step down a few grades. That creates a glut of people looking for the same jobs, putting downward pressure on pay.

One factor driving down technicians' pay is the ongoing push to outsource and offshore that job, says Gartner analyst Lily Mok, who notes that as long as a function can be outsourced, its pay won't likely recover.

Mok says that isn't the likely scenario for systems analysts, though. "Good, seasoned systems analysts, particularly those with business skills, they're still in demand," she says. That means that any pay cut is probably temporary.

– MARY K. PRATT

Although the salary increases for these jobs — ranging from 1.4% to 2.3% among the 5,861 IT professional surveyed this year — are modest compared with previous levels, career experts say the increases indicate that these positions require some of the most in-demand skills in IT today.

"Salary is an indicator of demand," says Kate Kaiser, who runs the Society for Information Management-sponsored IT Workforce Research Project and is professor of IT at Marquette University.

Ralph Spencer Poore, chief cryptologist at Cryptographic Assurance Services LLC, a security consulting firm in Arlington, Texas, says he's not surprised to see "information security manager" top the list of biggest compensation increases.

"It's a blossoming field internationally and has undergone a great deal of maturing, so there has been tremendous growth as a career," he says. As a result, information security jobs have become elevated in organizations, putting upward pressure on pay.

"If you had the title of information security manager in the '70s — it was a rare title — you were paid as a programmer. Now you're at a director's level, at the vice president level or higher in stature in a company, commanding that kind of salary," Poore says.

Yet while organizations are increasingly facing regulations and compliance challenges that require top-flight security professionals, there aren't enough experienced security managers to meet demand, he says. That, too, pushes up pay.

Dave Willmer, executive director of Robert Half Technology, a Menlo Park, Calif.-based IT staffing firm, says the salary findings for information security managers track with the data gathered by his company.

"Based on the CIOs we survey, information and network security is a No. 1 concern," says Willmer, who is a *Computerworld* columnist.

He cites an April RHT survey of 1,400 CIOs in which seven out of 10 respondents said that they will invest in IT initiatives in the next year, with 43% saying that information security projects top their lists. Virtualization (28%) and data center efficiency (27%) were next.

Willmer says that other positions getting bumps in pay are those involved in projects that address CIOs' top priorities, such as expanding wireless infrastructures to enhance employee mobility, improving the efficiency of storage systems — particularly through virtualization — or using BI tools to better support business decision-making.

HOW TO FIND WHAT'S HOT

Kaiser and others caution against focusing on job titles, since titles vary from company to company and can evolve rapidly. They say it's better to focus on the skills involved if you want to determine what's hot today — and what will command the highest pay tomorrow.

"Jobs are simply packaging. You take competencies and cluster them and give them a name. So you want to focus on what needs these jobs take care of, and what are the competencies," says Caela Farren, president of MasteryWorks Inc., a career consulting firm in Falls Church, Va.

Analysts, career experts and IT professionals see a host of up-and-coming IT skill sets, many of which are put to use in jobs that go well beyond the responsibilities of the job titles that enjoyed the biggest raises in the *Computerworld* survey.

HOW WE CONDUCTED THE SURVEY

***Computerworld*'s 23rd Annual Salary Survey was administered via the Internet. Responses from both *Computerworld* print subscribers and visitors to *Computerworld.com* were included in the survey results.**

The collection of survey data began on May 27, 2009, and concluded on July 20. A total of 6,365 people responded to the survey. Of those respondents, 5,861 were employed full or part time and were eligible to complete the entire survey.

At the 95% confidence level, the margin of error for this sample size is 1.3 percentage points. Compensation figures for 2008 were calculated based on the percentage change reported by the respondents.

MORE ONLINE For a detailed look at the survey methodology, visit computerworld.com/09/salaries

Although the salary increases for these jobs — ranging from 1.4% to 2.3% among the 5,861 IT professional surveyed this year — are modest compared with previous levels, career experts say the increases indicate that these positions require some of the most in-demand skills in IT today.

"Salary is an indicator of demand," says Kate Kaiser, who runs the Society for Information Management-sponsored IT Workforce Research Project and is professor of IT at Marquette University.

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"We're in the business of not thinking about titles, but what does this person really do," says David Foote, CEO and chief research officer of Foote Partners LLC in Vero Beach, Fla.

In his firm's August update of its 2009 IT Skills Trends Report, Foote put knowledge of Linux, virtualization, Microsoft's .Net, SAP's NetWeaver and Java EE, SE and ME at the top of the list of hot noncertified skills.

Foote Partners identified the top certifications as GIAC Certified Incident Handler, EMC Proven Professional Technology Architect-Expert, Citrix Certified Integration Architect, HP Master Accredited Systems Engineer, and Cisco Certified Security Professional.

Research firm Gartner Inc. also highlighted in-demand skills in its 2009 IT Market Compensation Study. Analyst Lily Mok says IT professionals that are in high demand have Oracle, SAP, Java EE, .Net, service-oriented architecture and PeopleSoft expertise.

"Most of these [professionals] will be paid a premium," Mok says, noting that a lack of adequate supply will fuel salary increases.

She says other IT positions that will rise in priority (and compensation) include enterprise architects, database administrators and network architects.

Other skills expected to experience an increase in demand include those dealing with cloud computing and managed services, wireless and telecommunications network engineering, and energy engineering, says Todd Thibodeaux, president of CompTIA.

Thibodeaux suggests looking through the postings on job boards to find trends in what skills employers want and are willing to pay the most for.

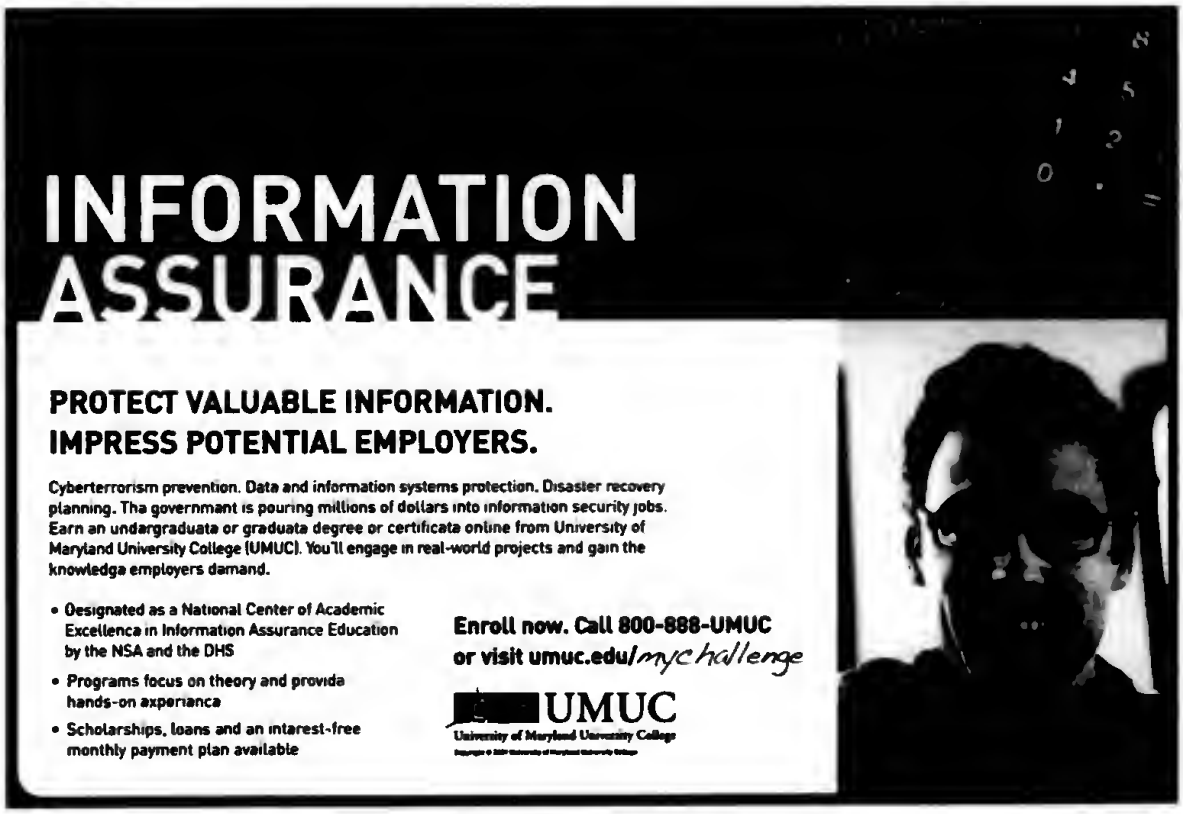
Acquiring in-demand skills is increasingly the responsibility of employees themselves, which means they have to look for classes, certifications or on-the-job training, he says.

"This is the best time to plan, to seek opportunities to do work on a project that you might not have had time to work on in the past," Mok says. "So ask your manager if there's a project on hold that you might be able to work on and learn from. That makes you more marketable, particularly if the project isn't just technical but connects to business as well."

Mike Zuro, network integration manager at CompTIA, moved into his position, which focuses on wireless systems and telephony in addition to other duties, when it was created about a year ago. Zuro says he combines independent learning with formal training: Like many in IT, he tinkers with technology on his own time, and he also recently finished a weeklong class on telephony, with his employer picking up the $3,100 tab.

He acknowledges that his evolving expertise is very marketable right now. "Demand is actually quite high," he says. And his salary reflects that. Zuro says he got a bump in pay along with a title change when he took on his new job. ■

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*



■ OPINION

Dave Willmer

IT Hiring Poised for Skills-Driven Rebound

SOME SIGNS indicate that the U.S. might be starting to emerge from the recession. Smart IT hiring managers know that postponing hiring until the recovery is well under way — and competition for top candidates is in full swing — could be risky. Employers that act promptly and strategically to recruit and retain IT professionals will have an advantage over those that wait for ideal economic conditions. Here's what next year's hiring environment likely has in store.

A rapid IT rebound. Robert Half International and CareerBuilder recently interviewed more than 500 hiring managers and 500 workers about the current and future employment markets. This year's report suggests that IT will be a focal point for post-recession hiring as employers prepare for pent-up project demands. In fact, when asked which departments within their organizations will add positions first once the economy turns around, "technology" was the hiring managers' top response.

Indeed, IT staff and systems will be central to many businesses' recovery plans. In a separate survey, Robert Half Management Resources asked 1,400 CFOs where they are most likely to invest once the economy improves. Forty percent cited new or upgraded IT systems — more than twice the percentage of respondents picking any other choice. When we asked CIOs which systems they are likely to upgrade in the next 12 months, the top responses were hardware, servers, wireless devices, and database software and administration.

It's only a matter of time before IT hiring heats up to white-hot levels to support technology investments. Forward-looking organizations won't wait until then to add new hires.

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Challenges finding qualified talent. One of our report's more surprising findings was that, even though there is a large pool of candidates, some hiring managers are having a hard time finding skilled professionals. In fact, 47% of managers said a shortage of qualified applicants was their top hiring challenge. In IT, this difficulty will only intensify when conditions improve and employers compete for the personnel needed to carry out technology initiatives delayed by the downturn.

Demand for specific skills. Keeping abreast of the skills in highest demand can help hiring managers anticipate staffing challenges. According to the Robert Half Technology 2010 Salary Guide, there will be continued demand for employees in the areas of network administration, virtualization, application and Web development, and help desk and desktop support next year.

A focus on retention efforts. Intensifying competition for skilled IT professionals should inspire hiring managers to focus not only on recruiting staffers, but also on protecting morale and building loyalty. Nearly half (45%) of employees surveyed for the report said they plan to change employers, careers or industries when the economy recovers. As a result, the ability to retain top performers and quickly bring new ones on board may make the difference between postrecession staffing success and continuing struggles.

A reassessment of staffing needs. Despite your business's desire to grow as soon as conditions allow, keep in mind that quickly adding full-time employees when conditions brighten can be just as costly as cutting too severely during difficult times. Overstaffing followed by layoffs damages both morale and productivity. By strategically augmenting full-time staff with highly skilled project-based professionals, organizations can bolster their retention of top performers as well as their ability to respond to future economic shifts. ■

Dave Willmer *is executive director of Robert Half Technology, a provider of IT professionals on a project and full-time basis.*

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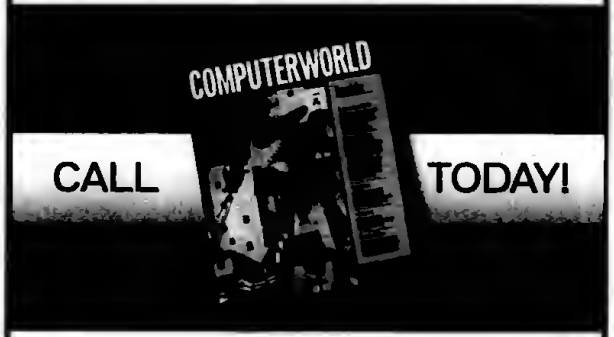

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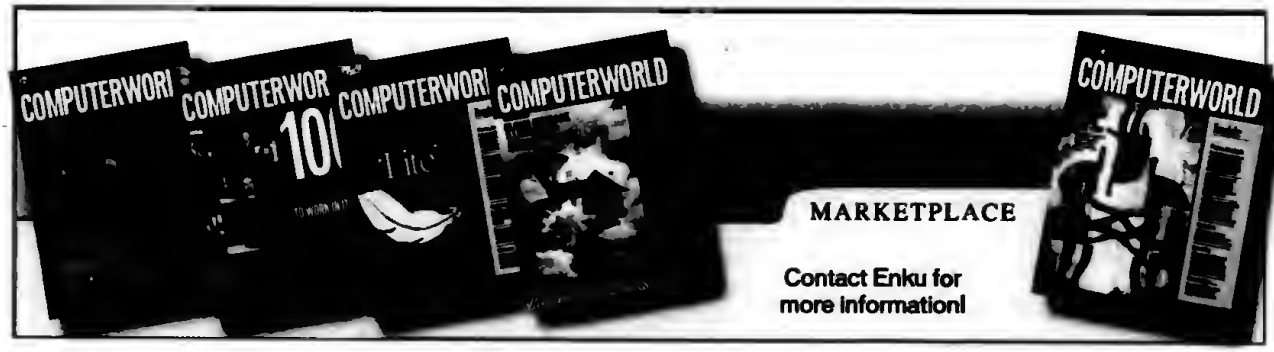
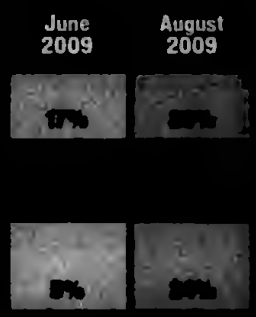


Career Watch

KEEPING THE WORKERS

The overall economy still isn't creating jobs, but a new survey indicates that many companies are perhaps taking the first step in that direction by reversing pay cuts and salary freezes.



■ **ASK A PREMIER 100 IT LEADER**

Scott Newman

The chairman of IT at **Oklahoma State University Institute of Technology** answers questions on dealing with a bad boss, the top tech skills for the future, and entering the IT field.

My boss has a fiery temper that seems to me and my peers completely inappropriate for a professional manager. He's a good pal of his boss, who doesn't seem inclined to address this problem. What can we do? Unfortunately, there generally isn't much a person in your situation can do – beyond reporting this as the reason for your departure during your exit interview. Your best option will probably be to update your résumé, fine-tune your skills (if necessary) and find another position under a manager you enjoy working with. If you stay in IT long enough, you'll most likely have an opportunity to lead others yourself someday. The silver lining of your current situation is the perspective you've gained on the kind of manager you don't want to be.

askaleader@computerworld.com.

What are the top two or three technical skills that would help someone remain employed in the IT profession over the next few years? Obviously, the response to this question will vary depending upon the employers and workforce sectors unique to a particular area. Nevertheless, generally speaking, information assurance/digital forensics skills (e.g., system auditing and incident response) are and will be among the most in-demand for the foreseeable future.

There is no question that mobile technology will play a major role in our industry's future – and there are relatively few individuals with the skills necessary to meet current and emerging demands. Therefore, expertise in working with the tools and technologies relevant to the mobile environment could prove invaluable to someone with an interest in software development.

The knowledge and skills necessary to design, implement and manage data centers vary from those required by more traditional infrastructure roles and are therefore in short supply. Just about every organization has at least one data center, and a number of major IT players have been moving into the market over the past several years, so opportunities for employment will almost assuredly continue to increase.

After years of working low-end jobs, I have just graduated with a bachelor's degree in computer science. I have very little experience in the field. Where should I go to have the best chance at an entry-level IT job? An increasing number of academic programs in computing have implemented internship or co-op experiences to provide students with opportunities to gain practical experience and improve their chances of being gainfully employed by the time they complete their degrees. You may want to speak with your alma mater to see if such an opportunity might exist for you even though you've graduated. You may also want to consider volunteering to assist a nonprofit organization with real-world projects. The nonprofit will be delighted to benefit from your skills, and the experience will result in an additional line or two on your résumé and fodder for your portfolio.

PAGE COMPILED BY JAMIE ECKLE.

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QUESTION?
If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com**, and watch for this column each month.

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KEEPING THE WORKERS

The overall economy still isn't creating jobs, but a new survey indicates that many companies are perhaps taking the first step in that direction by reversing pay cuts and salary freezes. This finding seems to reflect a growing concern among employers that they need to do more to retain their best performers. Not all of the survey's findings were positive, though. For example, of the respondents that had increased the amount employees pay for health care [illegible] Also, 40% [illegible] increase the percentage of health care premiums that employees pay. Another 41% said they will increase the deductibles, co-pays or out-of-pocket maximums for their 2010 health care plans. And as for retention, it might not be a real problem. The survey found that 83% of the respondents expect to see a rise in the number of employees who continue to work past the age at which they would have preferred to retire.

Within the next six months . . .	June 2009	August 2009
My company plans to unfreeze frozen salaries	17%	33%
My company plans to roll back salary cuts	30%	[illegible]
My company plans to reverse reductions to 401(k) matching contributions	5%	24%

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The Password Zone

Help desk staffers at this nationwide retailer spend a lot of their time resetting users' forgotten passwords. And they try to be nice about it, explaining to the often embarrassed users that it's no big deal. But sometimes that just doesn't help. Reports fish, "I told one user, 'I'm going to reset your password to your last name, with the first letter capitalized.' He said, 'Wait a minute. Let me get a pencil and paper to write that down.' I then spelled his last name for him and reminded him to capitalize the first letter. He thanked me and hung up the phone. Surreal doesn't even begin to describe how this felt!"

Four Is OK Too

Pilot fish gets a call from a panicked client with a week-old PC. "When I delivered the new machine to him, I told him that he should refrain from turning his computer on and off too many times during the day," says fish. "I said two or three times would be OK." Now the newbie user tells fish he can't plug in the mouse and keyboard, and he needs to answer an important e-mail that just arrived. Fish doesn't get it; how does the client know this time-critical e-mail is there if the PC is turned off? Turns out it isn't turned off, but the client's new desk has just arrived – and he's already turned the PC off three times that day. "So he left it on and had a friend hold the PC in the air while he and another guy replaced the desk below the PC," astonished fish says. "Because the keyboard and mouse kept falling down during this maneuver, they had decided to unplug them until they completed the desk switch. As for why they weren't able to plug them back in: They didn't know that these PS/2 connectors are foolproof, so they pushed and pushed them until some of the pins bent over."

Your Taxes at Work

This pilot fish works for a federal government agency at a remote site, supporting a handful of users. "The Washington, D.C., office wanted a digital photo of one of our users, which our administrative assistant e-mailed off, asking if the picture she'd attached would do," says fish. "D.C. responded that, yes, that's the picture they need. But it has to be sent in on a CD. I got that e-mail forwarded to me, asking me to burn the picture to a disk. It actually originated from D.C., so I'm now burning a CD of a file returned from D.C. via e-mail, to be sent overnight FedEx. I honestly thought about calling the D.C. person, having her put in a blank disc and remotely burning it from her computer, or having my boss who works down the hall from her burn it and drop it off. But in the end, it's just easier to waste money and not make waves."

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■ COMPANIES IN THIS ISSUE

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BPA ABM

Paul Glen

What Endures

AS MANAGERS, we all get caught up in the daily exigencies of the job. Subordinates constantly ask for or need direction. Bosses demand status updates and results. Clients and users want us to make their work easier or even possible. When your days seem like a blizzard of interruptions, are you ever able to do anything that might make a long-term difference?

Here's one way to think about what might have lasting value: Try to look back from the future. Take a little time to imagine that you are at the end of your career, about to hand off your job to someone else. It's a time for reflection, to ponder what will remain after you have moved on.

To do this is to realize that a manager's job is rather limited. The tools at our command are surprisingly circumscribed. The things that we actually influence are rather ephemeral. And the least ephemeral of those are probably not the ones you expect.

Policies, for example, are a primary tool that managers use to try to influence the future of their groups. But policies are really just proclamations that are easily ignored, contradicted or reversed. They have no real force over time. They are only as enduring as the processes they become embedded in.

Processes are a bit more enduring, but not by much. In many ways, processes are policies in action. But they do become a bit harder to change. They become embedded within technical systems as assumptions about what work will be done and how it will be done. Once automated, they become hard to undo. As we all know, people resist change, and a great deal of IT work is actually changing outdated policies and replacing them with new ones through systems.

People, though, are more enduring than either processes or policies. The people a manager brings into an organization or chooses for key roles may be her most enduring legacy. Of course, that's partly because the people a manager brings in may be part of the group for a very long time. But it's also because those people reinforce or undermine cultural assumptions. And this is what truly remains behind.

■ A manager's most enduring legacy is the culture she helps to create.

The most enduring legacy of a manager is the culture she helps to create. As an organizational consultant, I often visit groups and see both blessings and scars left behind by managers long gone. The culture that a departed manager had imparted lives on, be it in the fear instilled in a group or the freedom it feels to make honest mistakes.

More subtly, processes are imprinted with the culture of an organization. Embedded within policies and processes are unstated assumptions about the group's purpose, identity and values. They answer questions about how we will treat one another, whether we trust one another, how we organize ourselves, how and when we share information, what we will produce, and whose opinions matter.

In the end, it is the culture that remains longest after managers move on. But how do you go about influencing the culture that you will leave behind? You need to give that some thought, but that's the easy part. The trick is to effectively implement it. It doesn't happen by proclamation. It is absorbed by your staff to a large degree through their experience of how you treat others, how you perform under pressure and how you communicate.

In other words, in a very real sense, your legacy is being formed not despite the daily maelstrom around you, but based on how you handle it. Every time you treat a request with respect, interact with a user with good humor and genuine helpfulness, or articulate to senior management what IT can do for the enterprise, you are telegraphing to your staff how you expect them to conduct themselves as they go through their own kaleidoscopically busy days.

In large measure, your legacy is the result of what happens when you're too busy to think about your legacy. ■

Paul Glen *is a consultant who helps technical organizations improve productivity through leadership, and the author of the award-winning book* Leading Geeks *(Jossey-Bass, 2003). You can contact him at info@paulglen.com.*

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